Capsat® Fleet77

TT-3084A

User Manual

Thrane & Thrane A/S

Capsat® Fleet77

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User Manual

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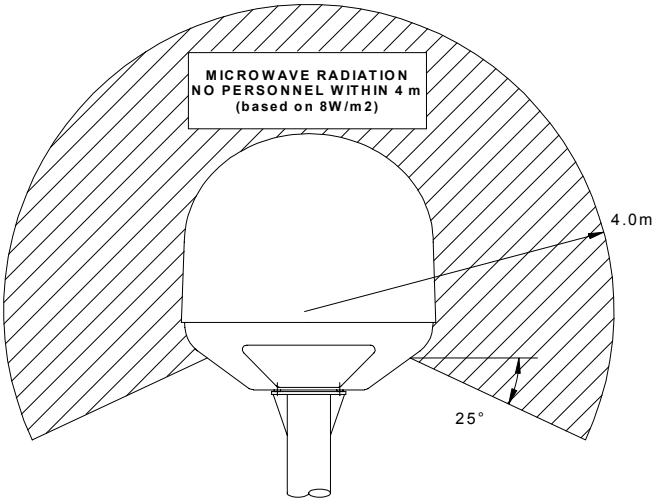
Safety Summary

The following general safety precautions must be observed during all phases of operation, service and repair of this equipment. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture and intended use of the equipment. Thrane & Thrane A/S assume no liability for the customer's failure to comply with these requirements.

Microwave Radiation Hazards

During transmission the antenna in this system radiates Microwave Power. This radiation may be hazardous if exposed directly to humans, close to the antenna. During transmission, make sure that nobody gets closer than the recommended minimum safety distance. The minimum safety distance to the antenna on the focal line, is 4m.



GROUND THE EQUIPMENT

To minimize shock hazard, the equipment chassis and cabinet must be connected to an electrical ground.

DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE

Do not operate the equipment in the presence of flammable gases or fumes. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.

KEEP AWAY FROM LIVE CIRCUITS

Operating personnel must not remove equipment covers. Component replacement and internal adjustment must be made by qualified maintenance personnel. Do not replace components with the power cable connected. Under certain conditions, dangerous voltages may exist even with the power cable removed. To avoid injuries, always disconnect power and discharge circuits before touching them.

DO NOT SERVICE OR ADJUST ALONE

Do not attempt internal service or adjustments unless another person, capable of rendering first aid resuscitation, is present.

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1 About the manual

Congratulations on purchasing your TT-3084A Capsat® Fleet77. This system makes it possible for you to communicate from virtually any ocean region in the world using the Inmarsat Fleet service established by Inmarsat. The Capsat® Fleet77 supports high-speed data (64 kbit/s circuit switched and packet data) and high quality voice as well as inexpensive voice services. This manual has the following chapters:

Chapter **2 Introduction** - an overview of the Inmarsat Fleet system and its services. Also a brief description of the system.

Chapter **3 Getting** started - a description of how to make and receive calls and the use of PIN codes.

Chapter **4 Operation** - a detailed description of the menu system in the terminal.

Chapter **5 PC programs** - a description on how to use the accompanying configuration PC software (FleetCP).

Chapter **6 Troubleshooting –** a description of the most common errors, how to deal with them and how to get further help if necessary.

Chapter **7 Index -** a subject index

Appendix A - Menu Tree

1

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2 Introduction

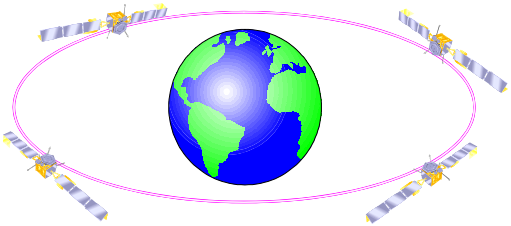
2.1 Abbreviations

ACU	Antenna Control Unit
ADU	Above Deck Unit
AORE	Atlantic Ocean Region East
AORW	Atlantic Ocean Region West
BDU	Below Deck Unit
GPS	Global Positioning System
IMN	Inmarsat Mobile Number
ISDN	Integrated Services Digital Network
ISN	Inmarsat Serial Number
IOR	Indian Ocean Region
ISP	Inmarsat Service Provider
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LES	Land Earth Stations
MES	Mobile Earth Station
MMI	Man Machine Interface
MPDS	Mobile Packet Data Service
MSN	Multiple Subscriber Number
NCS	Network Co-ordination Station
NSR	Network Status Record
PIN	Personal Identification Number
PUK	Personal Unblocking Key
POR	Pacific Ocean Region
RCC	Rescue Co-ordination Center
STE	Secure Telephone Equipment
T&T	Thrane & Thrane A/S
TNID	Terrestrial Network ID
UDI	Unrestricted Digital Information
USB	Universal Serial Bus

2.2 The Inmarsat Fleet service

The Inmarsat Fleet service is based on 4 Geo-stationary 3rd generation satellites situated above the equator. Geo-stationary means that the satellites are always located in the same position, i.e. they rotate at the same speed as that of the earth. Each satellite covers a certain area (footprint) and each satellite supports a number of powerful spot-beams making the service available in virtually all ocean regions on the earth between approximately 70°N and 60°S.

The 4 Geo-Stationary Inmarsat Satellites



The satellites are your connection to the worldwide networks, and they are managed by the Network Co-ordination Stations (NCSs), run by Inmarsat. The primary functions of the NCSs are to constantly keep track of which terminals are logged on to the system, and assign a free channel when a call is made.

The gateway between the public network and the satellites are operated by Land Earth Stations (LES). The LES are run by different operators around the world.

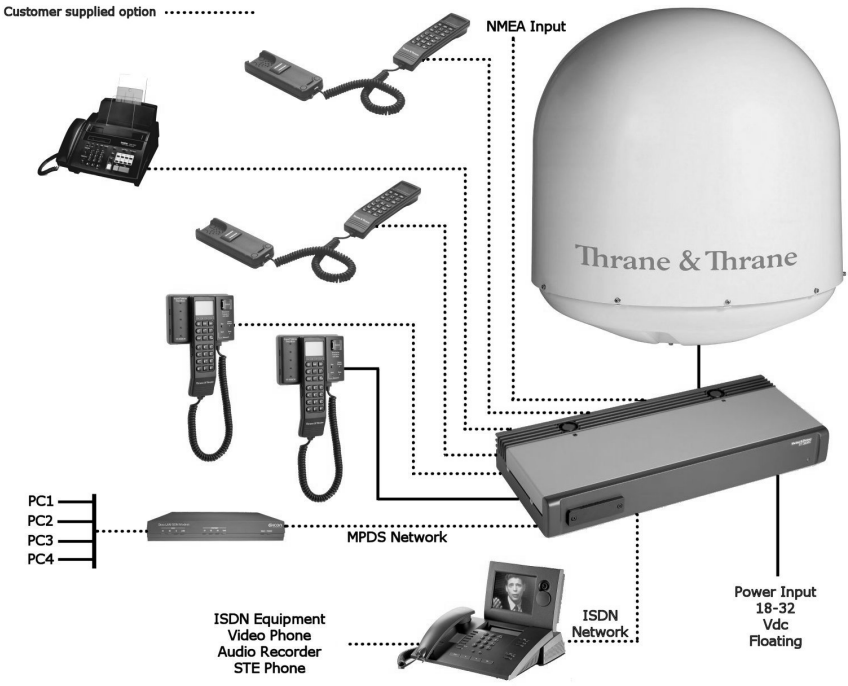
The F77 antenna is prepared for Inm-IV satellites expected in 2004. These satellites will also be compatible with 3rd generation (3G) cellular systems.

The services supported by the Inmarsat Fleet encompasses:

- **High speed services (64 kbit/s)**
  - 64 kbit/s universal data
  - 56 kbit/s universal data
  - Speech
  - 3.1 kHz audio
  - MPDS (Mobile Packet Data Service)

- **Low speed services (4.8 kbit/s)**
  - mini-M voice

For a detailed service explanation, please refer to the last section of this chapter. The above mentioned services allow for a wide range of applications. Examples are shown below.



Important notice: Before a terminal can be used on the network, it has to be commissioned by one of the Inmarsat Service Providers (ISP's). In order to use the different Inmarsat Fleet services it is necessary to have at least one Inmarsat Mobile Number (IMN) for each of the above mentioned services. In case all 6 services are commissioned on your terminal, you will have 6 IMN numbers.

Calling a Inmarsat Fleet terminal is equal to making international calls. If the satellite region/area is not known for the terminal the "country" code for a terminal is 870. When you dial a Inmarsat Fleet terminal through the public network, you have to dial the IMN number in addition to the international access code for Inmarsat, e.g.:

+870 600 555 555

Making calls from a Inmarsat Fleet terminal is equal to making international calls as the country code always has to be dialed.

Service explanation:

The mini-M services have a lower tariff than the high speed services, as these are high quality audio or high speed data services and thus require more bandwidth.

The **64 kbit/s UDI** (Unrestricted Digital Information) service enables the bi-directional transmission of data to and from terrestrial 64 kbit/s **ISDN** networks. The **56 kbit/s UDI** service is similarly used to make a connection to 56 kbit/s ISDN networks, which are primarily used in North America.

The **Speech** and **3.1 kHz audio** services make it possible to establish high quality analogue connections with quality equal to terrestrial analogue connections via digital

networks/switches. The **Speech** service is used for high quality voice connections, whereas **3.1 kHz audio** can be used to transfer analogue signals between fax machines and modems with an analogue 2-wire interface. The 3.1 kHz audio service is transparent, and is suitable for all analogue applications including secure telephones.

The **MPDS service** is a packet data service where the tariff depends on the amount of data transmitted. This service is a more cost-effective solution for web browsing, and other applications where there is no need for constant transmission of data in both directions. It is also suitable for applications where a constant connection is required, because the user is no longer charged the "per minute rate".

The **mini-M voice** service is only for voice transmission. The voice transmitted over the satellite is subject to a compression process down to 4.8 kbit/s, which reduces the bandwidth use and subsequently the cost.

2.3 The Capsat Fleet 77 system

The Capsat® Fleet77 System includes the following system components:

- TT-3008C Capsat® Fleet77 Antenna (ADU)
- TT-3038C Capsat® Fleet77 Electronics Unit (BDU)
- TT-3622B Capsat® Fleet77 Distress Cradle
- TT-3620F Capsat® Fleet77 Control Handset (4 wire)

Accessories (manual, software, etc.)

Instructions on how to assemble the system, wiring and specification, can be found in the Installation Manual.

TT-3008C Antenna

The TT-3008C antenna or ADU (Above Deck Unit) is a stabilized high-gain antenna. The antenna has built-in all functions for satellite tracking including a GPS system.

TT-3038C Electronics Unit

On the rear of the Electronics Unit or BDU (Below Deck Unit) is located all the interface connectors and on the front a configuration module.

The BDU holds a Configuration Module that stores the system configuration data. It contains all necessary data to recover the system after a replacement of the BDU.

Note: To make sure that writing to the Configuration Module is completed, please wait at least 10 seconds after any changes to the configuration, before powering the F77 down.

2

TT-3622B/TT-3620F Distress Cradle and Handset

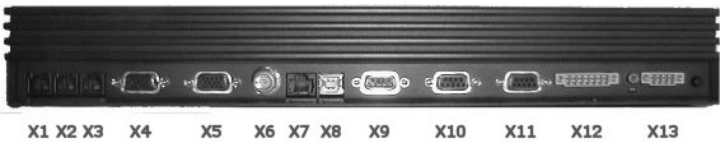
The Handset is used to configure the system and to make calls. See section 2.5 for a description of buttons, LED's and display of the handset. The Cradle has a distress button, a stop button and three LED's. The distress button, which is protected by plastic glass, is used to initiate a distress call. The stop button can be used to abort a distress call. The three LED's indicates, power, distress test and priority calls.

2.4 Hardware Interfaces

The Electronic Unit of the Capsat® Fleet77 has the following hardware interfaces:

- Handset 1 **(X4)**
- Handset 2 **(X5)**
- Analogue RJ11 number 1 **(X1)**
- Analogue RJ11 number 2 **(X2)**
- Analogue RJ11 number 3 **(X3)**
- ISDN (**I**ntegrated **S**ervices **D**igital **N**etwork) **(X7)**
- USB (**U**niversal **S**erial **B**us) **(X8)**
- RS-232 1 **(X9**)
- RS-232 2 **(X10)**
- NMEA 0183/2000 **(X11)**
- 4 Discrete I/O **(X12)**
- Power Connector **(X13)**

All connectors for these interfaces are found on the rear of the Electronic Unit:



These interfaces can be used for the different Inmarsat Fleet services.

Two Cradle/Handset interfaces:

The BDU has two 4 wire handset ports with RS-485 data control. Each Handset can be used to set-up the terminal and it can be used to make or receive phone calls utilizing one of the following services:

- Speech
- 3.1 kHz audio
- mini-M voice
- Distress call

Call transfer and Internal calls can be made between the two handsets.

Note: At present only one port (X4) is operational.

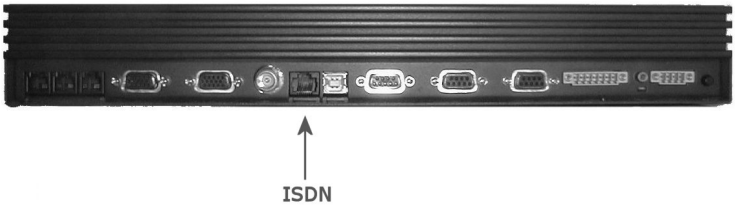
Three Analogue RJ11 interfaces:

The RJ11 ports as shown above can be used for connection of analogue phones. For all interfaces the following services can be used:

- Speech
- 3.1 kHz audio
- mini-M voice

Selection of service for the interfaces is independent of each other. If the mini-M voice is selected, a phone must be connected as only voice connections can be established.

ISDN interface:



This interface can be used for connection of ISDN equipment – data as well as voice/picture based equipment (phones, modems, terminal adapters, audio codecs, video conferencing equipment, STE secure voice, etc.).

The only exception is that normal terrestrial Basic Rate ISDN (BRI) is based on 2 channels (128 kbit/s Data) and 1 D channel (16 kbps Signaling). The Capsat® Fleet77 has 1 B channel (Data) and 1 D channel which combined equals a total bandwidth of 64 kbps. Please ensure that your ISDN equipment has the possibility of supporting 1 B channel only, otherwise it will not work.

The following services may be used on the ISDN interface:

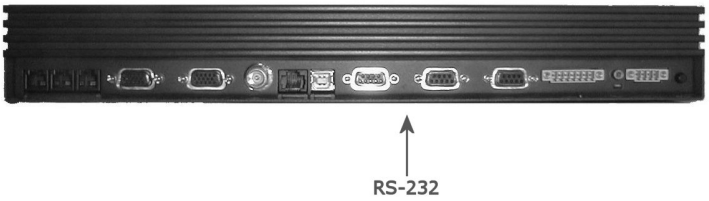
- 64 kbit/s UDI
- 56 kbit/s UDI
- Speech
- 3.1 kHz audio
- mini-M voice

Equal to the terrestrial ISDN network the terminal offers the possibility to have more than one device connected to this interface. Each device can be individually addressed when called and the service type can be selected individually. This requires that the attached equipment supports MSN (Multiple Subscriber Number). Depending on the brand of equipment it may be possible to program the

equipment with more MSN's. If a device should respond to a certain IMN number, it must be programmed in the ISDN equipment using the IMN as MSN. Note that the equipment will only react if both MSN as well as service type (speech, 3.1 kHz audio, 64 kbit/s or 56 kbit/s) fit the ISDN equipment.

Please note that the ISDN interface supports data transmission of one B-channel at 64 or 56 kbit/s as opposed to two B-channels at 64 or 56 kbit/s available on the terrestrial ISDN network and that the delay is also greater. Not all standard ISDN devices are equally good at coping with these differences.

Two RS-232 interfaces:



The RS-232 interfaces are both standard 9-pin serial ports, with a maximum port speed of 115.2 kbps. They can be used for the following service types:

- MPDS service
- Configuration of the terminal via FleetCP software
- Connection of a IP Router

When using the FleetCP program, the PC must be connected to the RS-232 interface. see section 5.1.

Note: At present only one RS-232 port (X9) is operational.

NMEA 0183/2000 interface:

The NMEA 0183/2000 is a Gyro and Navigation interface. It serves as a backup, if a alternative antenna without self-steering, has to be installed.

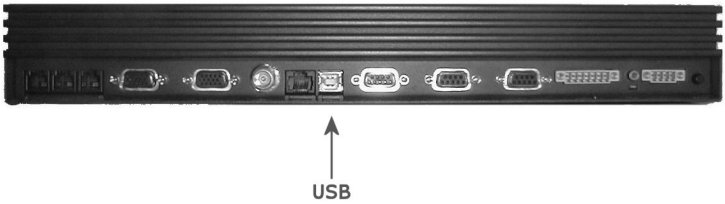
Note: Interface is currently not supported.

Discrete I/O interface:

The BDU also has a discrete I/O interface, containing 4 outputs of the open collector type and 4 inputs. Inputs could be used for F77/GSM operation and outputs for external alarms, debit pulses, B-answer and more.

Note: Interface is currently not supported.

USB Interface:



USB - Universal Serial Bus – is a popular technology that allows a single universal plug to connect PCs and peripherals of all kinds to each other. USB replaces all of the different serial and parallel PC connections with one standard plug and play port.

Note: Interface is currently not supported.

Power Connector:

For connection of power, see chapter 9 in the Installation Manual.

2.5 The Handset

The Handset is the primary interface for the TT-3084A Capsat® Fleet77. It enables the user to dial numbers, it displays error and status messages, and is used to configure the transceiver.

The Handset is divided into 3 distinct and inter-working sections.

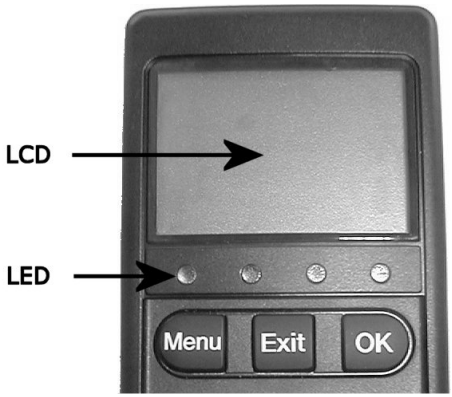
1. The first is the Liquid Crystal Display (LCD) and Light Emitting Diodes (LED) section. This section gives the user visual indications about the operation and status of the system.

2. The second is the Function buttons section. This section enables the user to interact with the software menu system of the transceiver.

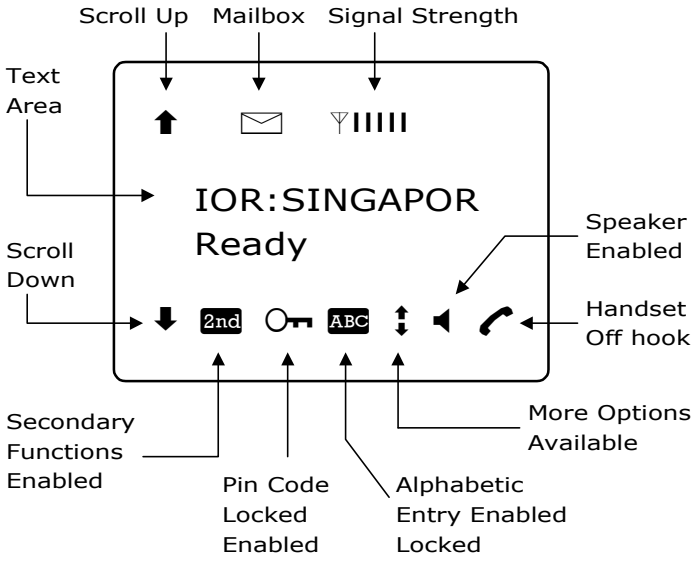
3. The third is the Alpha-Numeric section. This section enables the user to dial and perform data entry functions into the transceiver.

All 3 sections are in the following pages, explained in detail.

2.5.1 LCD/LED

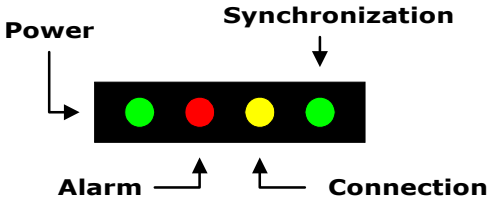


As shown in the picture above, the top of the handset contains the LCD for displaying information to the user. It can be adjusted for contrast and is backlit for viewing in dimly lit areas or night operations. The LCD display is graphically shown below:



The display contains a set of symbols which together with the 4 indicators situated below the display gives continuous indication of current status.

There are four LED's under the LCD display (see below). From left to right they are Power (GREEN) – Alarm (RED) – Connected (AMBER) – Synchronization (GREEN).



POWER LED (GREEN): The Power LED indicates that the system has power.

ALARM LED (RED): The Alarm LED will illuminate when the system detects a fault. A fault code will also be displayed in the LCD.

CONNECTION LED (AMBER): The Connection LED will flash when a call is ringing at the receiving end and will illuminate steady when a connection is made.

SYNCHRONIZATION LED (GREEN): This is a dual function LED. Initially, the LED will illuminate when the system has synchronization with a satellite. When the system has established a data call, the LED assumes its secondary function as a data transfer light. When data is being transferred (sent or received), the LED will light. This is a quick visual reference during data communications.

2

Symbol	Meaning
	More menu entries above.
	More menu entries below
	Turned on when the 2nd key has been pressed.
	If lit it indicates that a valid PIN code is required to use the terminal
	Turned on when the keypad is in alpha mode. Alpha mode is used to enter letters (for example names in the phone book).
	The value in a menu must be selected between certain predefined values by means of the Edit and Print keys.
	The speaker. The user can turn the external speaker on and off by pressing 2nd 8 tuv. The ◀ symbol is displayed in the LCD when on.
	Short message stored at a LES – see section 4.1.4 and 4.3.1 Mailbox for further information.
	The number of bars (I) following this antenna symbol indicates received signal strength. Up to 5 bars. The number of displayed bars, my fluctuated during a call. This is due to a power

reduction, negotiated between the terminal and the satellite.

The handset is off hook

2.5.2 Function Buttons

The Function buttons, as shown above, enables the user to enter the menu system of the transceiver and change various settings. Each button is described in detail below.

Symbol	Meaning
Menu	Enter the top level of the menu system. See section 4.1 Menu System.

2

Exit EXIT Button: Similar in function to the ESC key on a PC. While in the Menu system, pressing Exit will bring the user back one level until the Menu is completely exited. When asked YES or NO by the system, pressing Exit will be interpreted as a NO response. When entering data into the transceiver, depressing exit will cancel the entry.

OK The OK button: is the inverse of the Exit button. It is similar in function to the Enter key on a PC. When in the main screen display, pressing OK will enter the menu system. While in the menus, pressing OK will enter the selected menu. When entering data, such as phone numbers or PIN codes, pressing OK will accept the entry.

C *Ins* The Clear button: This is a dual function button. The primary function is to clear the last entered digit. It is similar in function to the backspace key on a PC.
Secondary function: INSERT. This function is accessed by first pressing and releasing the 2nd Button and then pressing the C *Ins*.The insert function is used to insert new Inmarsat Mobile Numbers (IMN's) into the terminal, insert Phonebook entries, etc.

↑ *Edit* SCROLL UP button: Also a dual function button. The primary function is to enable the user to scroll up to menu items not shown on the 2-line display of the LCD.
Secondary function: Edit. Allows users to edit previously entered information in the transceiver.

Toggles between normal mode and alpha numeric mode.
Secondary function: Delete. Allows users to delete previously entered information.

The 2nd function of the next key pressed will applied.

SCROLL DOWN button: Also a dual function button. The primary function is to enable the user to scroll down to menu items not shown on the 2-line display of the LCD.
Secondary function: Audio.

Toggles between on hook and off hook.

A number of keys have a 2nd function. A total overview of these are given in the following table.

Key	Function
2nd 1 Redial	Recalls the last dialed number.
2nd 2 Lock abc	Forces the next user to enter PIN code before it is possible to use the terminal.
2nd 3 Area def	Shortcut to the area selection submenu, see section 4.1.2 Area.
2nd 4 Fax ghi	Establish a fax call from the handset if the

fax does not have a keypad. See section 4.2.4 Fax call.

2nd 5 R jkl — Transfer an incoming call to another hardware interface. See section 3.3.3 Transferring incoming calls.

2nd 6 Mute mno — Turns the handset microphone on/off.

2nd 8 tuv — Turn speaker in the cradle on/off.

2nd 9 Ant wxyz — Shows C/No "signal strength" in the display. Pressing 2nd 9 Ant wxyz or Exit returns to the previous state.

2nd # Dim — Sets the brightness of the LED's. See section 4.3.17 below LED Dimm.

2nd 0 Hdesk — Short cut to the Help desk menu. See section 4.1.5 below Help Desk.

A B C Del — Toggle between normal mode and alpha mode.

2nd C Ins — Insert an entry (for example in phone book)

2nd ⬆ Edit — Edit an existing entry (for example in phone book)

2nd A B C Del — Delete an existing entry (for example in phone book)

2.5.3 Alpha-Numeric Buttons

The keypad can be in normal (numeric) mode or alpha mode. Normal mode is used to enter digits (phone numbers) whereas alpha mode is used to enter letters (names in the phone book). The [Del] is used to switch between the two modes and the display indicates if in alpha mode. In alpha mode each of the numeric keys (plus [#Dim]) can be used to select between subsets of the alphabet (and certain special characters) by pressing the key a number of times until the wanted letter/character is shown on the display. To insert the letter C it is necessary to press [2Lock abc] 3 times in alpha mode. Below is an overview of the relevant keys in alpha mode.

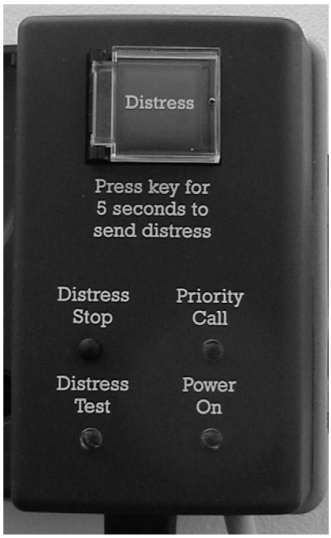
Key	Toggles between when pressed in alpha mode
[1Redial]	- ? ! , . : ' $ ( ) + / 1
[2Lock abc]	A B C 2
[3Area def]	D E F 3

4 Fax ghi	G H I 4
5 R jkl	J K L 5
6 Mute mno	M N O 6
7 pqrs	P Q R S 7
8 tuv	T U V 8
9 Ant wxyz	W X Y Z 9
0 Hdesk	Move cursor (forced)
# Dim	<space>

2.6 Distress Cradle

Besides being the base for the handset, the Distress cradle is also where a Distress call is initiated or ended. A speaker for hand free operation, is located in the lower left side of the cradle. Press 2nd 8 tuv to toggle the speaker on/off.

The right side of the cradle has a green Power On LED, indicating that the system is powered on. Above that is a red Priority Call LED. This will be lit whenever a priority call is in progress. See section 4.2.6 Priority calls. To the left of the Power LED is the Distress Test LED. This is lit when a distress test is performed. See section 4.3.19 DistressTest. Above the Distress Test LED is the Distress Stop button. This is used to abort a Distress call. The Distress button, protected by plastic glass, is used to initiate a Distress call. See section 3.4.1 How to make a Distress call.



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3 Getting started

3.1 Get ready to make a call

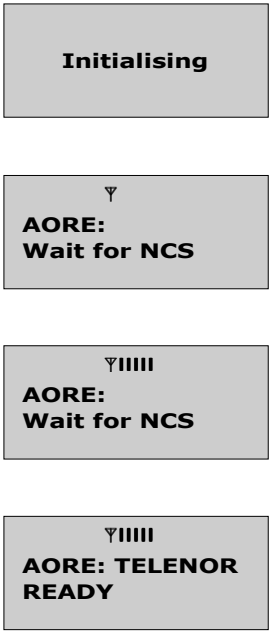
3.1.1 How to power on the system.

The power button on the Fleet77 is placed on the back panel. See figure below.

Press and hold the power button for a few seconds or until the green LED on the front of the terminal lights up.

The display and all LED's on the handset and the cradle will light up for a few seconds.

Below is an example of the normal readout of the handset display, while the BDU is booting.



When the display reads "READY" as shown above, the Fleet77 is ready to make and receive calls.

3.1.2 How to power down the system.

Note: To make sure that writing to the configuration module is completed, please wait at least 10 seconds after any changes to the configuration, before powering the F77 down.

Press and hold the power button for a few seconds, until the handset display shows the message shown below.

Let go of the button and the terminal will shut down.

Note: Wait at least 5 seconds after a power down, before trying to power up the F77 again.

3.2 Use of PIN codes.

Access to some of the terminals functionality is restricted by a PIN code. Two different kinds of User PIN codes, is used in the F77. A PIN for the Super User and one for the Service User.

Common for both PIN types is that the length must be between 4 and 8 digits long and contain digits between 0 and 9.

The normal everyday user **(Normal User)** can make and receive calls, access the phonebook, chose an ocean region and a default LES, read the alarm log and status and make a call from the Helpdesk. For a description of these functions see section 4.1 Menu System. All other setup has to be carried out by a Super User or a Service User.

Super User PIN
The Super User has the same rights as the Normal User. In addition the Super User can access the Super User menu. See section 4.3 for details. A Super User will typically be a person responsible for setting up and maintaining the F77. It is only possible to have one Super User PIN code. If the

PIN is entered incorrectly 5 times, the PIN becomes blocked. A blocked Super User PIN, can only be unblocked by a PUK code or the Service User. The factory PIN code is '12345678'.

Service User PIN
The Service User has access to all functionality in the F77. This PIN is normally known only to T&T and/or the supplier of the equipment. If the PIN is entered incorrectly 5 times, the PIN becomes blocked. Only a PUK code can unblock a blocked Service User PIN. The factory PIN code is '12345678'.

3.3 Normal calls

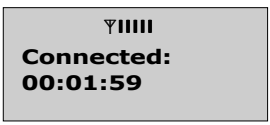
3.3.1 Call from handset

When making calls from the handset just type in the phone number as if you were making an international call (with prefix for automatic international calls equal to 00).

Dial the number: [0 Hdesk] [0 Hdesk] for international calls [4 Fax ghi] [5 R jkl] for country code then [3 Area def] [9 Ant wxyz] [5 R jkl] [5 R jkl] [8 tuv] [8 tuv] [0 Hdesk] [0 Hdesk] (which is the number to Thrane & Thrane). Followed by [📞] or [#]. The display on the terminal handset will show how the call proceeds.

You hang up by pressing [📞]. After hanging up, the display will show how long the call lasted.

Example:



The service type (mini-M voice, Speech or 3.1 kHz audio) used and the LES operator used will be the default setting as configured. The phone book can also be used to dial from, either by selecting an entry in the phone book or by using the short code. See section 4.2.1 for details.

3.3.2 Calling the terminal

Calling the terminal or a device connected to the terminal is similar to making international calls. The specific IMN-number (a terminal may have more numbers as different services exist and more devices may be connected to the different hardware interfaces of the terminal) has to be preceded by one of the five possible international access codes. This depends on whether you know which area the terminal is within or not:

870: Area of terminal not known
(requires that the LES supports Mobility Management).

871: AORE
872: POR
873: IOR
874: AORW

To call the IMN-number on a terminal situated in IOR dial

00873 followed by the IMN number

3.3.3 Transferring incoming calls

In case an incoming call is routed to more hardware interfaces and is answered on a wrong hardware interface it is possible to transfer the call to another interface by using the 2nd 5 followed by a number indicating the

hardware interface. The hardware interfaces have the following numbers or local extensions:

1st Handset	1	
2nd Handset	2	(currently not functional)
1st 2-wire	3	
2nd 2-wire	4	
3rd 2-wire	5	
ISDN	6	

It is possible to address a specific device on the ISDN interface if more devices are connected in parallel to this interface. This requires that the IMN-number has been programmed into the ISDN device as a so called MSN (Multiple Subscriber Number). To address a specific device on the ISDN interface press [2nd] [5 jkl] followed by the IMN number.

3.4 Distress call

A distress call is an automated way of calling for help (SOS). A distress call from the Fleet77 system is a voice call, which means that the call will be connected to a operator at the RCC (Rescue Co-ordination Center). When the distress call is connected, the ships position and the MES ID is sent to the RCC. This enables the center to identify the ship and to get a fix on its position.

3.4.1 How to make a Distress call.

To initiate a Distress call, press and hold the Distress button on the cradle. The button will flash with a interval of 1 second and the cradle buzzer will beep with the same interval. The Distress call will be canceled and the terminal will return to a normal state, if the button is released within 5 seconds.

After the 5 seconds, the button light will become constant and the buzzer will stop beeping. Any ongoing calls will be pre-empted, provided its not another Distress call.

The handset will display the message 'Select LES'. Scroll through the LES list with the Edit Audio keys and select the LES by pressing OK. If a LES is not selected within 15 seconds or one of the 2 keys #Dim is pressed, the call will be initiated through the LES pre-configured in the "Distress LES". If no Distress LES is configured, the Default LES will be used instead. If the Default LES is also not configured, the NCS redirects the call to an appropriate LES.

Note: If a Distress LES is not defined for each Ocean Region, an alarm will appear and the entry 'Distress LES is not selected in all Ocean Regions' will be added to the alarm log.

To cancel the Distress mode, press the 'Distress Stop' button, after the button light becomes constant, but before the 15 seconds timer runs out. The display will then show 'Distress Aborted'.

If the Distress call is continued, the handset will display 'DISTRESS - Calling'. The call will be connected to the RCC, the handset will display 'DISTRESS - Connected' and the cradle LED 'Priority call' will light up. The user can now talk to the RCC operator.

The 'Distress' button light will stay lit on all cradles, until key is pressed on the handset.

3.4.2 Distress call failure.

If the Distress call fails to connect, due to a system malfunction (BDU, ADU, satellite or terrestrial), the light on

the cradle 'Distress' button will turn off and the system will return to a normal state.

3.4.3 Distress and Priority call to the ship

The RCC operator can generate a distress alert priority call to the ship. The 'Priority Call' LED will start flashing on all cradles and if the call has distress priority, the buzzer will beep with 1 second intervals.

Any calls with lower priority including MPDS sessions will be pre-empted and a busy tone will be heard.

The distress and priority call is answered by picking up a handset or by pressing after which the 'Priority Call' LED will light steadily and the buzzer stops beeping.

The 'Priority Call' LED will turn off when the call is terminated.

If the call is not answered by the ship, but terminated by the RCC, the Alarm LED turns on to indicate that there was an unanswered distress alert or priority call. Details about the alarm can be checked in the alarm log.

3.5 ISDN and MPDS connection

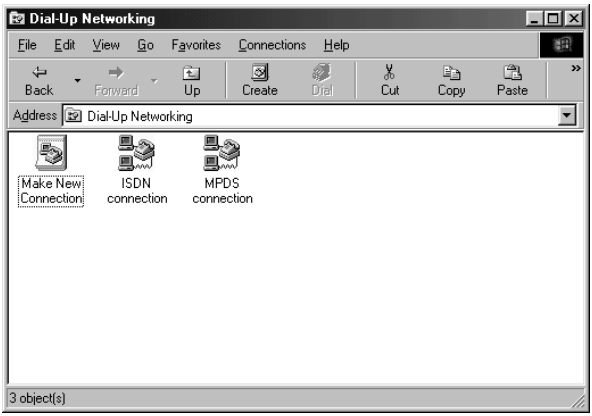
Mobile Packet Data Service (MPDS) and Integrated Services Digital Network (ISDN) is both services that enables the mobile user to connect to the Internet. The maximum data transfer rate is 64 kbit/s. The difference between the Mobile ISDN and MPDS is that Mobile ISDN is charged by connection time and MPDS is charged by Mbits transferred. This means that for applications like Web browsing, email services, IP/LAN connectivity, small to medium size file

transfer, the MPDS will be the most economic and convenient solution.

While in MPDS or ISDN mode the TT-3084A is flagged busy in the Inmarsat network, i.e. it is not able to receive any calls, until it returns to normal idle mode.

See section 5.2.1 on how to setup the computer and transceiver for a MPDS connection and section 5.2.2 Set-up for ISDN for the ISDN connection.

A connection can be started automatically by an application like Internet Explorer or Outlook Express. The connection can also be established manually. In windows, open Dial-Up networking and double click the appropriate icon. Enter username and password if necessary. Click 'Connect'. Wait for the connection to be completed, indicated by a 'Dial-up Networking' icon in the task bar tray.



The connection can be disconnected by right clicking the tray icon and choosing 'Disconnect'.

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4 Operation

4.1 Menu System

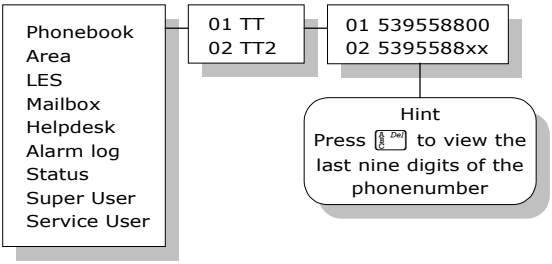
This section describes the functions in the menu system, available to all users.

The menu is accessed by pressing [Menu]. Scrolling through the menus is done by the keys [↑ Edit] and [↓ Audio]. Pressing [OK] will enter the selected menu. Pressing [Exit] will exit to the previous level in the menu system. A point in the menu system can also be reached by pressing [Menu] and a number corresponding to the entry level, e.g. pressing [Menu] [5 jkl] will access the 'Helpdesk' menu.

The level of access to the menus, is divided into 3 groups of users. A Normal User, a Super User and a Service User. The Normal User has access to normal everyday functions. A Super User has the same rights but in addition, access to different setup menus. The Service User menu can only be accessed by the supplier or Thrane & Thrane. The Super User and Service User menus are protected by PIN codes.

A complete Menu Tree can be found in Appendix A - Menu Tree.

4.1.1 Phonebook



The terminal **PhoneBook** contains 99 entries. Each entry contains the following information:

- Name
- Telephone number
- Short code

The telephone number includes call prefix for automatic calls and international access code. The telephone number can hold up to 22 digits.

The name can hold from 0 to 16 characters.

The short code can be used for quick access when dialing. To use the short code, press * <short code> #Dim and press #Dim again to dial.

The list of entries in the phone book is sorted according to short code.

An entry in the phone book is displayed as a short code and a name if in alpha mode or as a short code and a telephone number if in normal mode.

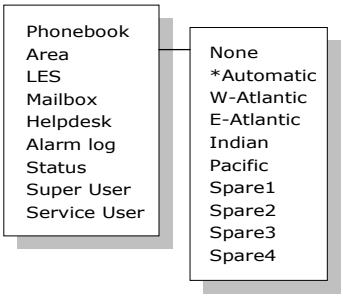
Use ↑Edit ↓Audio to select an entry and press OK. The phone number is displayed. Press OK again to dial.

Inserting an entry in the phone book from within the phone book menu, is done in the following way. In this example the number to T&T, 004539558800, with short code 14 is inserted.

2nd C(ins)
THRANE OK
0(Hdesk) 0(Hdesk) 4(Fax ghi) 5(R jkl) 3(Area def) 9(Ant wxyz) 5(R jkl) 5(R jkl) 8(tuv) 8(tuv) 0(Hdesk) 0(Hdesk)
OK
1(Redial) 4(Fax ghi) OK

Editing or deleting an entry is done by selecting the entry in the phone book and press 2nd (Edit) and 2nd (Del) respectively.

4.1.2 Area



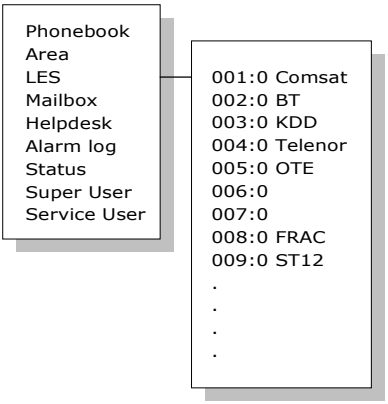
The **Area** menu is used to select ocean region and has got the following list of possible choices:

- None
- Automatic
- W-Atlantic
- E-Atlantic
- Indian
- Pacific

- Spare 1
- Spare 2
- Spare 3
- Spare 4

The selection is marked with an *. If Automatic is selected the terminal will determine the area by scanning the sky and selecting the satellite with the best C/No. The selection is changed by choosing an area and then pressing [OK]. A coverage map can be found in the FleetCP configuration program. See section 5.1 System Set-up from PC.

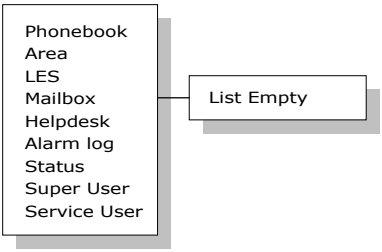
4.1.3 LES



The **LES** list contains a list of those LES operators which may be selected as gateway to the terrestrial network. The last used LES will be marked with * and this LES will also be the first LES tried next time the terminal is logged on. Use [OK] to select. The Area selected in section 4.1.2 Area, will decide which LES's will be available for selection.

For further information about LES, see section 4.3.24 LES Config.

4.1.4 Mailbox



The **Mailbox** feature handles messages being sent from the LES operator. If a call is made to a terminal, which is busy, switched off, etc. the LES operator may offer the facility to record a short message. When the terminal again becomes operational a message is sent indicating that the LES operator has recorded a short message for the terminal.

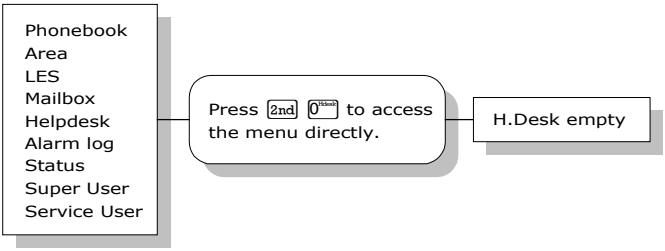
The ✉ symbol in the handset display indicates the presence of such messages.

Each message can be seen in the **Mailbox** menu and contains the following information:

- LES Access Code
- Service type (voice, fax, data).

To View a entry, select the message and press [OK]. See how to delete a message in section 4.3.1 Mailbox.

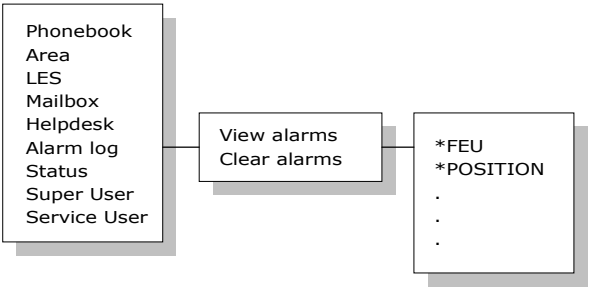
4.1.5 Help Desk



The **Help Desk** menu can be used to select and initiate calls to certain numbers which may provide help in case you have forgotten your PIN code. In this case, it is done by pressing 2nd 0.

Editing/inserting and deleting entries is done in exactly the same way as with the phone book, but it can only be done from the service user menu. Normally this menu is only accessible to T&T or the supplier. Each entry contains a phone number, name of the entry, TNID (terrestrial network ID) and a LES access code.

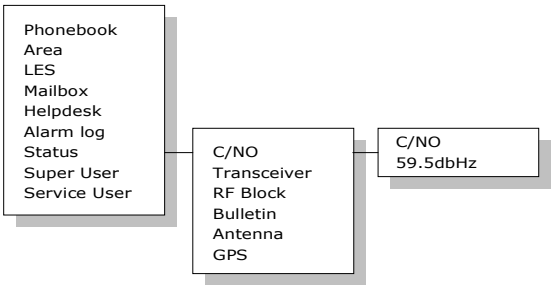
4.1.6 Alarm Log



The **Alarm Log**, logs all the alarms in the system. From this menu, the alarm can be viewed only. To clear the alarm list see section 4.3.20. Scroll through the list, using the [Edit] [Audio] keys. A * in front of the Alarm name, indicates that the alarm is still active. Select an alarm for viewing, by pressing [OK]. Each entry for an alarm contains an alarm description and the time and date when the alarm occurred. See section 6.2 for a list of alarms.

The alarm log can contain up to 100 entries. The log will wrap around when the log is full.

4.1.7 Status



The **Status** menu has got the following sub menus:

- C/No
- Transceiver
- RF block
- Bulletin
- Antenna
- GPS

C/No:
Choosing C/No will display the signal strength in dBHz. Pressing [Exit] will return to the previous state.

Transceiver

Release date:	Software release date.
Unit Type:	Type of unit.
Serial No.:	T&T serial number.
ISN:	Inmarsat serial number.
CPU PCB No.:	Serial number of main CPU board.
Forward ID:	Terminals Forward ID number.
SW Ver.:	Software version.

RF Block

RX Frequency:	Receiving frequency in MHz.
TX Frequency:	Transmitting frequency in MHz
Freq. offset:	Frequency offset between 0-1500 Hz.
Acc. offset:	Acc offset between 0-1500 Hz.
AGC:	AGC between 0-1024.
Gain:	Gain between 0-256.
TX level:	TX level equals LOW or OK.
Lo1-Lo3:	Lox In or Out of lock.
Temperature:	Temperature in deg. C.
Power mode:	Power mode in sleep or normal.

Bulletin

Ocean Region:	AORW, AORE, POR or IOR.
NSR state:	Not initialized, initializing or initialized.
Type:	Mini-M or Fleet77
Bulletin page 1-6:	Page 1 to 255 or Invalid.
Spot beam ID:	Spot beam ID number between 1-255.
SU CC Rxed:	Between 0000-9999.
SU CC Txed:	Between 0000-9999.

Antenna

HPA:	(Not in this release).
ACU:	(Not in this release).

GPS

PositionInfo:	Not ready or Latitude and Longitude.
Heading:	Not ready or heading 0-360 degrees.
Speed:	Not ready or speed in knots.

UTC Time:	Not ready or YYYY:MM:DD HH:MM:SS
Internal GPS:	Not ready or Active and ready.
External GPS:	Not ready or Active and ready.

4.2 Call functions

4.2.1 Call using phone book

The phone book can be used to dial from either by selecting an entry in the phone book and then pressing [📞] or by using the short code. In the latter situation press [*] followed by the short code. Pressing [📞] afterwards will establish the call. Pressing [#] instead will show the actual number and the call can then be established by pressing [📞] or [OK] or [#].

Short code 0 contains the last dialed number. Thus [0 Hdesk] [# Dim] followed by [📞] will redial the last number.

4.2.2 Call from handset connected to RJ11

Making a call from a phone connected to one of the three analogue RJ11 interfaces is done in the same way as when calling from the handset, just keeping in mind to press #. Calling Thrane & Thrane in Denmark (country code 45) is done by pressing the following keys on the phone:

[0 Hdesk] [0 Hdesk] [4 Fax ghi] [5 R jkl] [3 Area def] [9 Ant wxyz] [5 R jkl] [5 R jkl] [8 tuv] [8 tuv] [0 Hdesk] [0 Hdesk] [# Dim]

When using one of the RJ11 analogue interfaces please make sure that the selected interface is configured for a service which supports voice (mini-M voice, speech or 3.1 kHz audio). See section 4.3.22.Routing

The display on the handset will show how the call proceeds.

After hanging up, the display will show how long the call lasted.

4.2.3 Call from an ISDN phone

Making a call from a phone connected to the ISDN interface is done in the same way as when calling from the handset, just keeping in mind to press [#Dim]. Calling Thrane & Thrane in Denmark (country code 45) is done by pressing the following keys on the phone:

[0Hdesk] [0Hdesk] [4Fax ghi] [5R jkl] [3Area def] [9Ant wxyz] [5R jkl] [5R jkl] [8 tuv] [8 tuv] [0Hdesk] [0Hdesk] [#Dim]

The display on the terminal handset will show how the call proceeds.

After hanging up the display will show how long the call lasted.

4.2.4 Fax call

Note: This procedure is currently not functional.

Fax calls can be made whether or not the fax has got a keypad.

Making calls from a fax (with keypad) connected to one of the three analogue Rj11 interfaces are done as international calls followed by [#Dim]. Calling Thrane & Thrane in Denmark (country code 45) press the following keys on the fax:

[0Hdesk] [0Hdesk] [4Fax ghi] [5R jkl] [3Area def] [9Ant wxyz] [5R jkl] [5R jkl] [8 tuv] [8 tuv] [8 tuv] [8 tuv] [#Dim]

Please make sure that the selected analogue RJ11 interface is configured for a service which supports fax (mini-M fax or 3.1 kHz audio).

The display on the handset will show how the call proceeds.

After hanging up the display will show how long the call lasted.

Making fax calls when the fax has not got a keypad is done by using the keypad on the terminal in the following way. Calling Thrane & Thrane in Denmark (country code 45) press the following keys on the Capsat® Fleet77 Handset:

After this the terminal asks which service to use:

1: mini-M fax (2.4 kbit/s)
2: 3.1 kHz audio (high speed).

Press either 1 Redial or 2 Lock abc depending on your selection and then press the start-button on the fax.

To hang up after faxing. See the user manual for the fax.

4.2.5 Call via USB

To be defined.

4.2.6 Priority calls

A priority level can be selected when making a call. The priority levels is listed in the table below, where Routine-personal is lowest priority and Distress is highest.

Call Type	Priority level
Routine-personal	0-
Routine-professional	0+
Safety	1
Urgency	2
Distress	3

To make a Routine-personal call via the Default LES, press the number and initiate the call by pressing [#Dim] or [📞].

To make a Routine-personal, Routine-professional, Safety or Urgency call using default LES, press the number followed by [OK]. Use the [↑Edit][↓Audio] keys to select call priority. Press [#Dim] or [📞] to initiate the call.

To make a priority call using a LES different from the default LES, press the number followed by [OK]. Use the [↑Edit][↓Audio] keys to select call priority. Press [OK] to open the LES list. Use the [↑Edit][↓Audio] keys to select a LES and press [#Dim], [📞] or [OK] to initiate the call.

A Distress call can only be made by pressing the Distress button on the Distress Cradle. See section 3.4.1 How to make a Distress call.

4.2.7 Internal calls

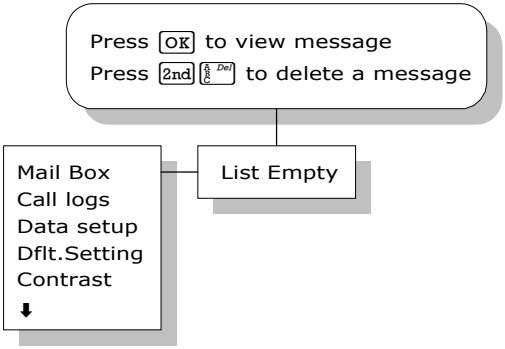
It is possible to make internal calls between any handset and between any RJ11 (2 wire) interface. The call is initiated by pressing the interface code in the table below and then #Dim

Interface	Interface Code	Interface port
Handset #1	1	X4
Handset #2	2	X5
RJ11 #1	3	X1
RJ11 #2	4	X2
RJ11 #3	5	X3

Note: Handset #2 is currently not operational.

4.3 Super User functions

4.3.1 Mailbox



The **Mailbox** feature handles messages being sent from the LES operator. If a call is made to a terminal, which is busy, switched off, etc. the LES operator may offer the facility to record a short message. When the terminal again becomes operational a message is sent indicating that the LES operator has recorded a short message for the terminal.

The ✉ symbol in the handset display indicates the presence of such messages.

Each message can be seen in the **Mailbox** menu and contains the following information:

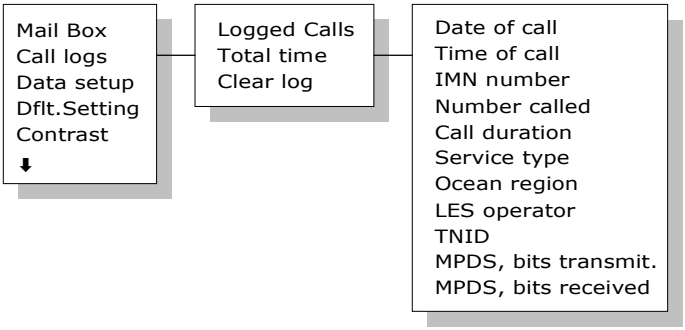
- LES Access Code
- Service type (voice, fax, data).

The following operations are possible:

- View entries
- Delete entries.

To View a entry, select the message and press [OK]. To delete a entry, select the message and press [2nd] [Del].

4.3.2 Call Logs



The **Call log** menu has got the following sub-menus

- Logged calls
- Total Time
- Clear log

By entering the **Logged calls** menu it is possible to inspect information about each of the logged calls made on the terminal. The following information is logged for each call:

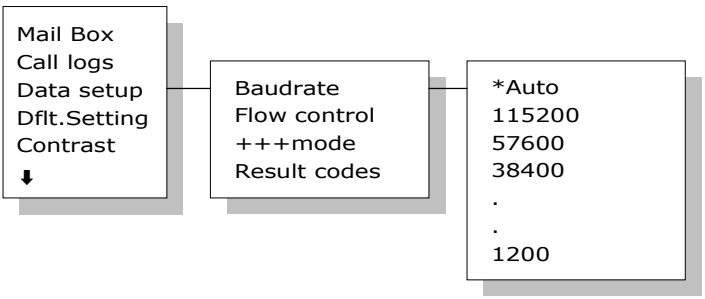
- Date of call.
- Time of call.
- IMN number.
- Number called.
- Call Duration.
- Service type.
- Ocean region.
- LES operator.
- Terrestrial Network Identity
- MPDS, number of bits transmitted.
- MPDS, number of bits received.

Total Time shows the total accumulated call time since last reset.

The call log can be cleared by selecting the **Clear Log** menu. Press [OK] to clear or [Exit] to abort.

The call log can contain up to 999 entries. After that it will do a wrap around and start overwriting the oldest entry.

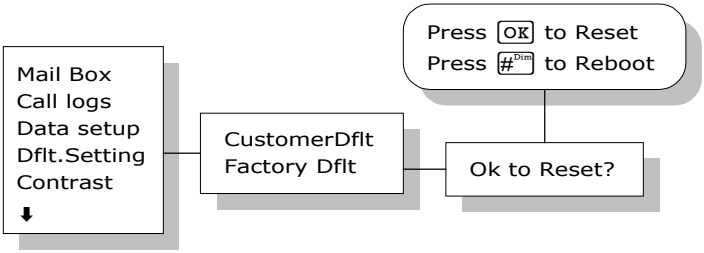
4.3.3 Data setup



This menu is used to setup baudrate and dataflow control for the two RS-232 interfaces. The following settings can be configured.

Baudrate:	Auto | 1200-115200
Flow control:	None | Xon/Xoff | Hardware
+++mode:	Disabled | Enabled
Result codes:	Disabled | Enabled

4.3.4 Dflt.Setting

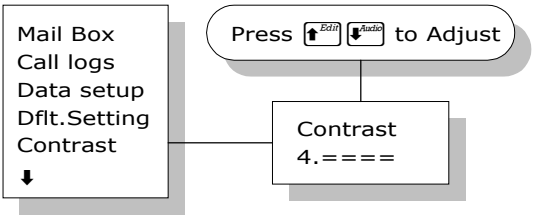


To reset settings to the factory default, select **Factory Dflt.** and press OK to reset. The default settings will be loaded and the BDU will reboot. To reboot only, press #Dim instead of OK.

Settings affected by this is:

- Key beep
- Display contrast
- LED brightness
- Ring cadence
- Ring volume

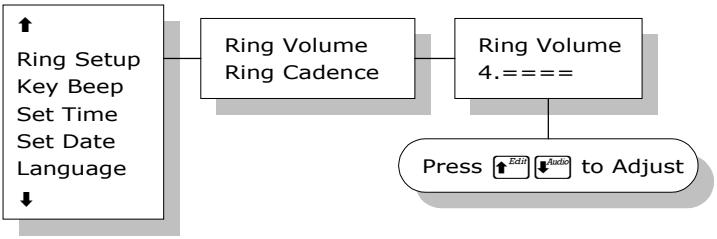
4.3.5 Contrast



The display contrast of the two handset can be adjusted. To change the contrast level, select the **Contrast** menu and adjust the value with Edit and Audio. Setting can be adjusted between 1 and 8. Default value is 4.

4

4.3.6 Ring setup

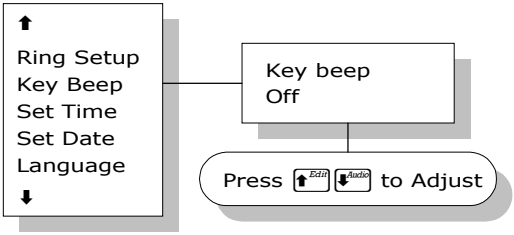


Ring setup gives the possibility to change the ringing tone and the handset volume. Adjustable values are:

Ring Volume: Off|1|2|3|4, default is 4.
Ring Cadence: 1|2|3|4|5|6|7|8, default is 1.

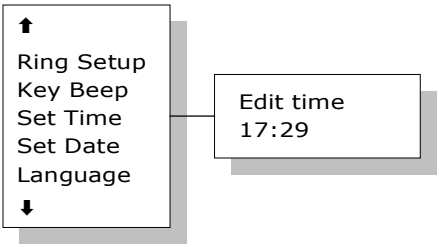
Both settings are adjusted with Edit and Audio.

4.3.7 Key Beep



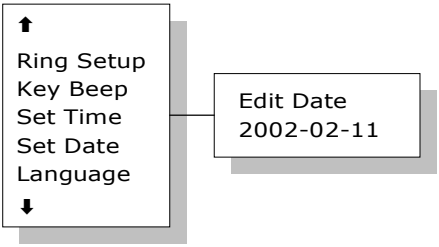
Key Beep, the sound that's heard when a key is pressed, can be set to Off, 1, 2, 3 or 4. The setting is adjusted with Edit and Audio. Key Beep is default off.

4.3.8 Set Time



The current time can be viewed and modified. The time is displayed in 24 hour format {hh:mm}. Enter a new time and press OK to update or Exit to cancel.

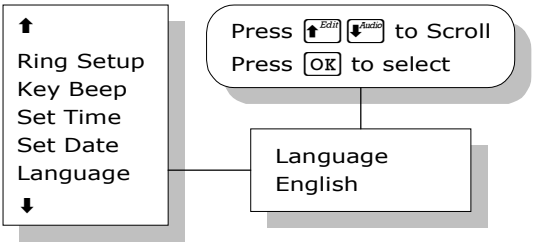
4.3.9 Set Date



The current date can be viewed and modified. The date is displayed in the format {yyyy:mm:dd}. Enter a new date and press OK to update or Exit to cancel.

4

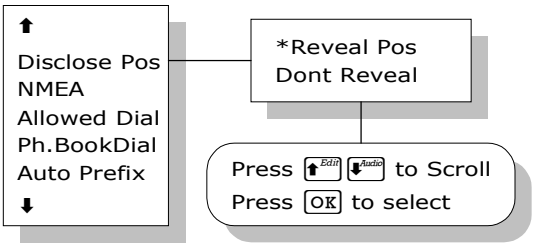
4.3.10 Language



The MMI language used, can be changed to other languages.

Note: In this release only English can be selected.

4.3.11 Disclose Pos.

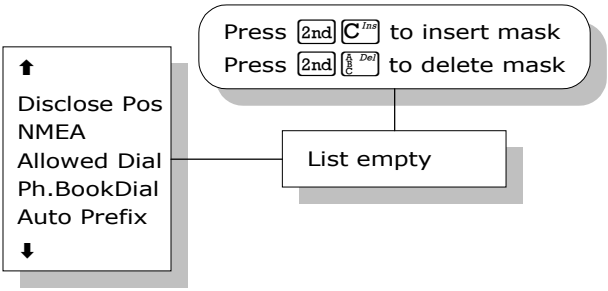


It is possible to disable the automatic reporting of position, from the GPS system. This menu gives the option to change this. Select 'Reveal Pos' or 'Don't reveal' with the Edit and Audio key. Select function with the OK key. Current status is marked with a *****.

Note: Disabling automatic reporting of position, means that the terminal will report spot beam ID instead.

Note: When a user initiate a maritime distress priority call, the position is reported regardless of whether the automatic reporting is disabled or not.

4.3.12 Allowed Dial



Allowed Dial is a function that allows the Super User to specify a phone number mask, to restrict outgoing calls.

A phone number matches a dial mask, if the number contains at least as many digits as the mask and when the digits in the mask matches the corresponding digits in the phone number, starting from the first digit.

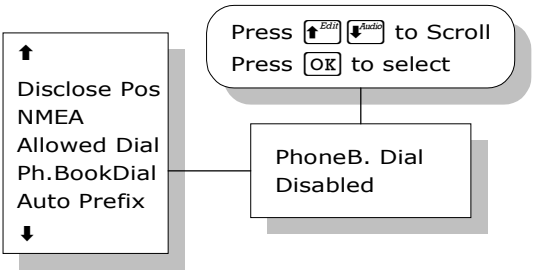
Press [2nd] [C Ins] to insert a mask and [2nd] [Del] to delete an entry.

Examples:

Mask	00453955
Valid number	004539558800
Valid number	004539558888
Invalid number	39558800
Invalid number	004539

The terminal can contain up to 99 entries and each entry can be 22 digits long.

4.3.13 Ph.Book Dial

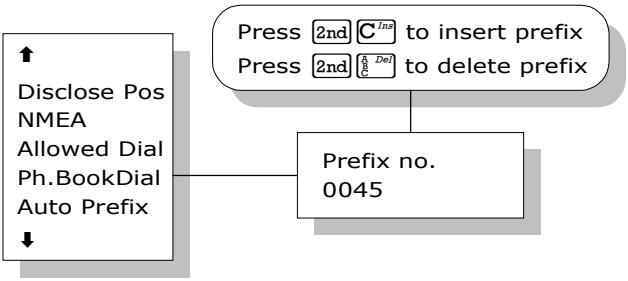


When this function is enabled, Normal User will only be able to make calls using the phone book or the Help desk.

Use [Edit] and [Audio] to scroll between 'Enable' or 'Disable' and press [OK] to select.

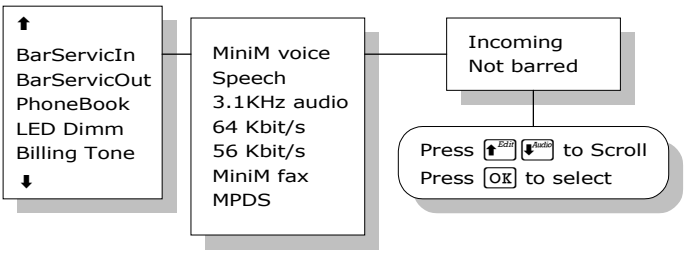
The function is by default disabled.

4.3.14 Auto Prefix



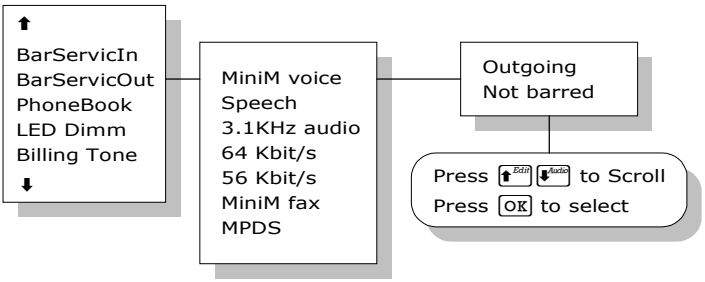
A prefix, e.g. 0045 for Denmark, can automatically be added to any dialed number. One prefix number with up to 22 characters can be defined. By default no Auto Prefix number is specified. Press [2nd] [C Ins] to insert a prefix and [2nd] [abc Del] to delete the prefix.

4.3.15 BarServiceIn



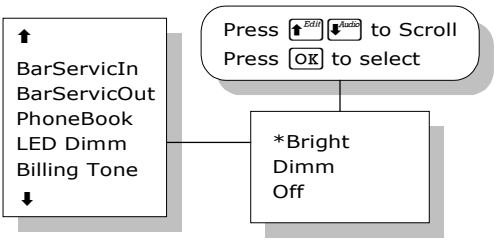
All incoming calls on a specific service can be barred. Scroll through the services with [Edit] [Audio]. Select the service with [OK]. The service can then be set to 'Barred' or 'Not barred' with [Edit] [Audio] and [OK].

4.3.16 BarServiceOut



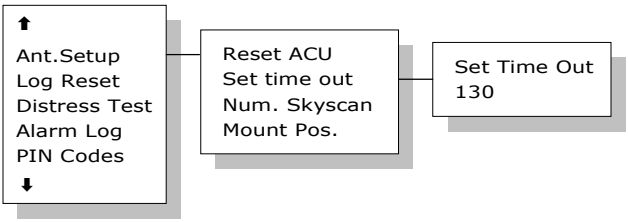
All outgoing calls on a specific service can be barred. Scroll through the services with [Edit] [Audio]. Select the service with [OK]. The service can then be set to 'Barred' or 'Not barred' with [Edit] [Audio] and [OK].

4.3.17 LED Dimm



The brightness of the 4 LED's on the two handset can be adjusted. To change the brightness level, select the **LED Dimm** menu and adjust the value with Edit and Audio. Setting can be adjusted to Bright, Dimm and Off. Default value is Bright.

4.3.18 Ant.Setup



The **Ant.Setup** has got the following sub menus:

Reset ACU: This function will reset the ACU in the antenna. The DC power running in the antenna cable, will be turned of for a few seconds, causing the ACU to restart. This can be useful if the antenna control freezes or locks up.

Set time out: This value is the time in seconds, that the system can stay alive without a satellite signal. Valid range is 1 to 300 seconds. Default is 130 seconds.

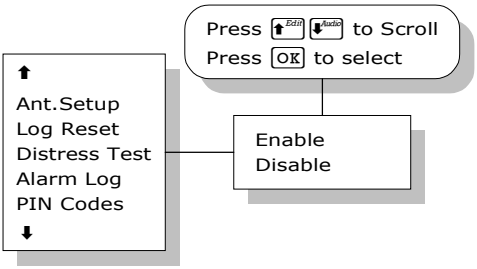
Num. Skyscan: Enables the user to define the number of sky scans. Valid range is 1 to 10 scans. Default is 1 scan.

Search speed: This menu gives the user the possibility to set the search speed. Search speed is the speed in which the antenna moves when searching for a satellite. Valid range is 1 to 40 deg./second. Default is 15 deg./second.

Increasing the search speed beyond the default value, may result in performance degradation.

Mount Pos.: Because of the build in GPS, the antenna is capable of finding the satellite within a few seconds. A heading of the ship is also needed, but since the GPS does not supply the antenna with this information, a relative angle of the antenna compared to the ships bow, has to be known. Select the antennas mounted position, relative to the ships bow. Valid angels are 0, 90, 180, and 270 deg, positive in a clockwise direction. Default angel is 0 deg.

4.3.19 DistressTest

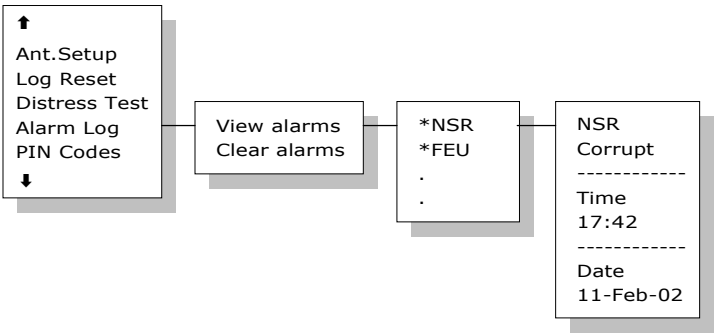


A **Distress Test** is made to test the Distress call system. When the RCC receives the call, a flag in the message will has been set, so that the RCC can identify the call as a test call. Follow the Distress Test procedure above:

- Enter the DistressTest menu and use ↑Edit ↓Audio and OK to enable distress test. The display on the handset will show 'Distress Test Enabled' and the Distress Test LED will start flashing.

- The Distress test mode remains active in 30 seconds, after which it automatically disables the test again. While the distress test is enabled, press the Distress button on the cradle for 5 seconds or until the light on the button stops flashing and the buzzer stops beeping.
- All ongoing calls will after 15 seconds be pre-empted.
- A list of distress LES's is presented in the handset display. Use [Edit] [Audio] and [OK] to select a LES. If a LES is not selected within 15 seconds, the pre-configured LES will be selected instead.
- The handset display will now go from 'Distress calling' to 'Distress connected' as the call progresses. 'Distress connected' also means that the test was a success.
- To abort the test call press [phone] or wait 120 seconds, after which the call will automatically be disconnected.

4.3.20 Alarm Log

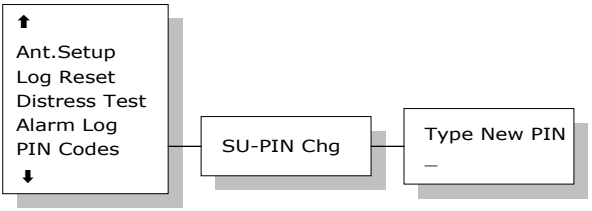


The **Alarm Log**, logs all the alarms in the system. From this menu, the alarm can be viewed and cleared. To clear the alarm list, select the submenu "Clear alarms" and

confirm the message "Delete all?" by pressing [OK]. Scroll through the alarm list, using the [↑ Edit] [↓ Audio] keys. A * in front of the Alarm name, indicates that the alarm is still active. Select an alarm for viewing, by pressing [OK]. Each entry for an alarm contains an alarm description and the time and date when the alarm occurred. See section 6.2 for a list of alarms.

The alarm log can contain up to 100 entries. The log will wrap around when the log is full.

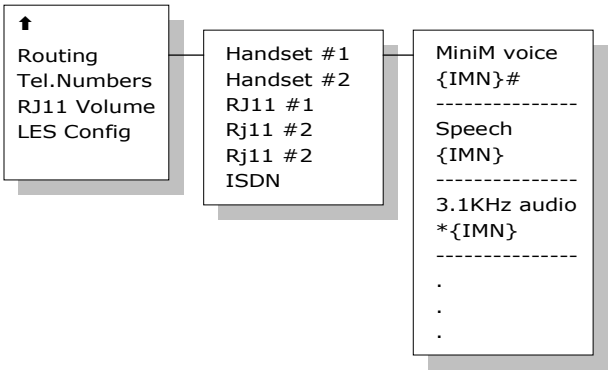
4.3.21 PIN codes



The **Pin codes** menu is where the Super User PIN is changed. For a description of the pin codes, see section 3.2 Use of PIN codes. The **Pin codes** menu has the following sub menu.

SU-PIN Chg: The Super User PIN is changed here. Type in the new PIN and press [OK] to accept the change.

4.3.22 Routing



This menu has been divided into a submenu pr. interface plus a print menu:

- Handset #1
- Handset #2 (currently not operational)
- RJ11 #1
- RJ11 #2
- RJ11 #3
- ISDN
- RS-232 #1
- RS-232 #2 (currently not operational)
- USB (currently not operational)

Note: The IMN-number has to be defined, before the service can be routed to an interface. The service will not be listed in the routing table, unless it has an IMN-number defined.

When entering one of the above submenus it is possible to scroll through a list of all relevant IMN-numbers for the interface. In the handset menu, you will see all IMN's associated with voice: mini-M voice, speech, 3.1 kHz audio.

The ISDN menu has the same, but in addition also the services 64 Kbit/s and 56 Kbit/s. If an IMN has an incoming route to an interface it is marked with "*". If it has an outgoing route to an interface, it is marked with a "#". It is possible to change the routing-status for each IMN to the opposite by pressing [*] for incoming and [#Dim] for outgoing.

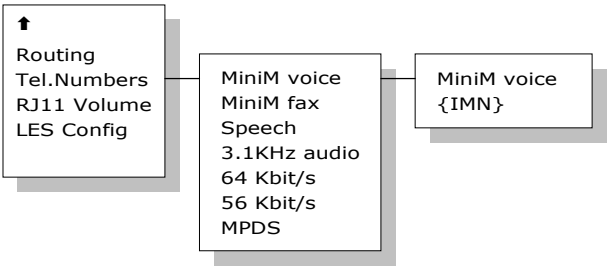
It is possible to route one IMN to more interfaces. The only exception is that the same IMN can not be routed as an incoming route simultaneously to all three analogue RJ11 interfaces.

Below is a table giving an overview of the routing matrix in the F77. The X's indicates which service that can routed to the specific interface.

Service	Interface				
	Handset (1 & 2)	RJ11 (1, 2 & 3)	RS-232 (1 & 2)	ISDN	USB
Mini-M voice	X	X		X	
Mini-M fax		X			
Speech	X	X		X	
3.1 kHz audio	X	X		X	
64 Kbit/s				X	
56 Kbit/s				X	
MPDS			X		

Note: In this release, routing to Handset #2, RS-232 #1, RS-232 #2 and USB, is not possible. All MPDS calls are routed automatically to the RS-232 port labeled X10.

4.3.23 Tel. Numbers



The **Tel. numbers** menu has been divided into the different types of services available:

- mini-M voice
- mini-M fax (currently not operational)
- Speech
- 3.1 kHz audio
- 64 kbit/s UDI (Universal Data Interface)
- 56 kbit/s UDI
- MPDS

In each menu, all IMN's associated with a specific service should be inserted. The IMN's are given by the ISP when commissioning the terminal. After inserting an IMN number and pressing [OK] the handset will show "ID" and a number. The ISP may also have indicated the corresponding ID's along with the IMN-numbers. If the ID shown by the terminal corresponds with the ID given by the ISP press [OK]. If not, then correct the ID by pressing [C Ins] for delete, type the correct ID and then press [OK]. If the ISP has not indicated the ID for each IMN number two situations exist:

If there is not more than one IMN-number pr. service and the IMN list is empty, the ID shown by the terminal will always be correct and thus just press [OK].

If there is more than one IMN-number pr. service and the IMN list is empty, the rule is that the first (or upper) IMN on the returned commissioning form will have the lowest ID and each subsequent IMN-number will have an ID which is 1 higher than the predecessor.

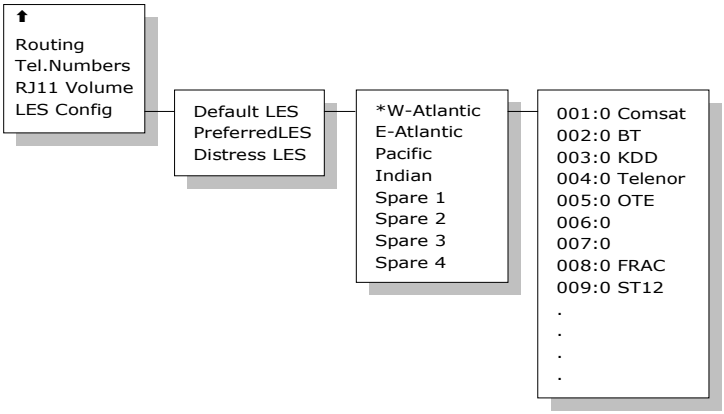
Note: In case the IMN's are combined with the wrong ID's, the wrong interface may be activated for incoming calls. Furthermore, reference IMN for an hardware interface when making outgoing will be wrong. Thus service type and billing will be otherwise than expected. The ISP may help you with this.

ID's are entered as decimal and the allowed range pr. service type is as follows:

Service	ID – range
Mini-M voice	1-15
Mini-M fax	17-31
Mini-M data	33 – 47
Speech	145 – 159
3.1 kHz Audio	97 – 111
64 kbit/s UDI	81 - 95
56 kbit/s UDI	113 – 127
MPDS	161 – 175

Note: The IMN-number has to be defined, before the service can be routed to an interface. The service will not be listed in the routing table, unless it has an IMN defined.

4.3.24 LES Config



This menu is used to select a list of LES operators. It contains the following sub menus:

- Default LES
- PreferredLES
- Distress LES

The **Default LES** list contains a list of those LES operators which may be selected as gateway to the terrestrial network. The last used LES will be marked with * and this LES will also be the first LES tried next time the terminal is logged on. If there's no LES list selected under Allowed or Preferred LES, the Default LES list will contain the LES list from the satellite bulletin board, meaning all available LES in the selected Ocean region. Use [↑ Edit] [↓ Audio] and [OK] to select a Ocean region and then a LES.

An **Allowed LES** list can be selected under the Service User menu. If an Allowed LES list exist, only the LES's in this list can be selected under Default and Preferred LES.

An Allowed LES list contains all available LES operators in the selected ocean region. Those operators marked with * can be used as Default LES operators and thus appears in the Default LES list above. If all LES operators are allowed and can be used there are no markings.

As there are many operators, you can use **PreferredLES** to make selections easier. The Preferred LES list can be used to indicate in which order LES operators should appear on the Default LES list. This is done by pressing [2nd] [C Ins] for each LES intended to be on the list and in the order they should appear in the Default LES list. A prompt for a TNID will appear in the handset display. This value is usually 0, but in some countries with more than one terrestrial network, the TNID can have another value. To accept the default TNID, press [OK]. Press [OK] again to update the preferred LES list. To remove a LES from the list, press [2nd] [Del] and then [OK] to update the list.

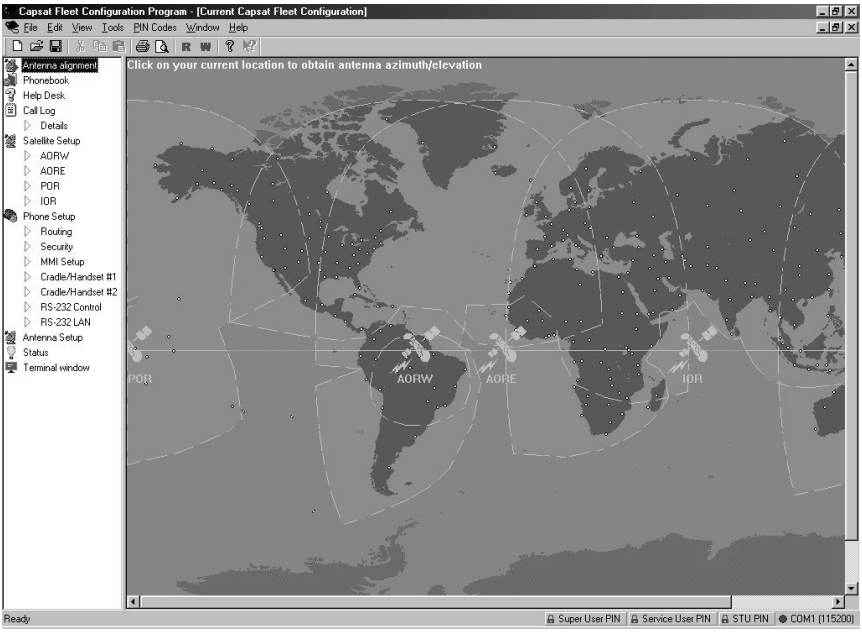
The **Distress LES** list contains a list of those LES operators which may be selected as a LES when making a Distress Priority Call. The Distress LES list is a separate list obtained from the satellite bulletin board. Use [↑ Edit] [↓ Audio] and [OK] to select a Ocean region and then a LES.

Note: If a Distress LES is not defined for each Ocean Region, an alarm will appear and the entry 'Distress LES is not selected in all Ocean Regions' will be added to the alarm log.

5 PC programs

5.1 System Set-up from PC

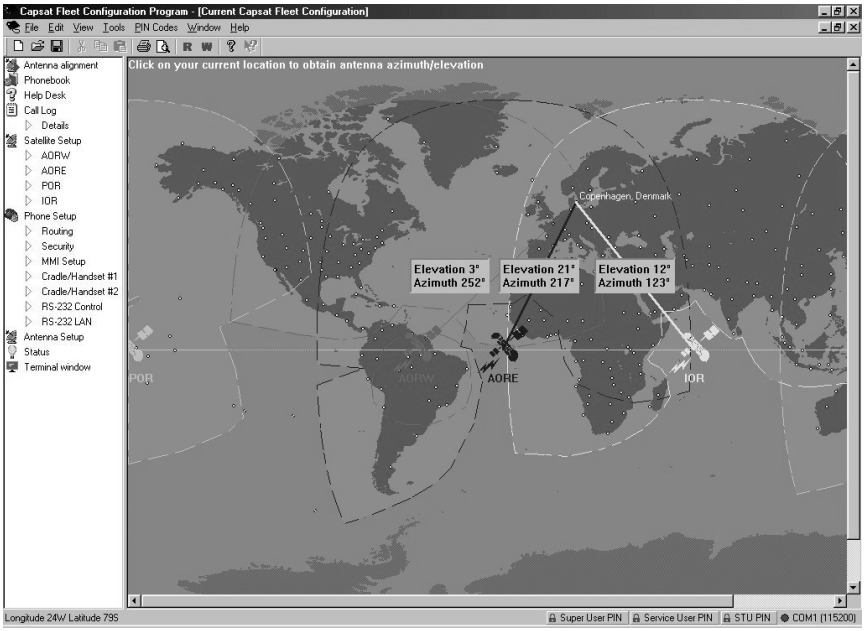
System set-up can be managed from a PC program called FleetCP, instead of from the handset. The following pages is a short introduction to FleetCP. The picture below shows the initial screen, when the program is started.



Clicking the red R button on the top toolbar, will read the current configuration from the terminal. Clicking the red W button, will write any changes to the terminal.

The functions can be selected by clicking in the left menu window. The menu window is divided into the groups, Antenna alignment, Phonebook, Help Desk, Call Log, Satellite Setup, Phone Setup, Antenna Setup, Status and Terminal window.

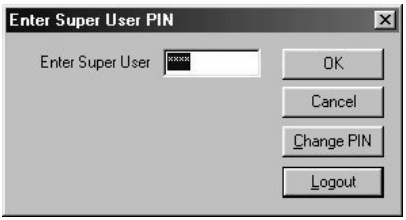
Clicking the map will show the Azimuth and Elevation to the satellites reachable in that area. See picture below.



The status bar in the lower part of the window, will show longitude and latitude as the cursor is moved around the screen.

The status of the PIN codes can be seen on the right side of the status bar. If no PIN codes are entered, all locks will be red and locked. Click the appropriate button to enter or change a PIN code. See picture below. If a PIN is entered,

the lock will become unlocked and turn green. At the same time a new logout button will appear next to the PIN code buttons. Clicking this button resets the status of the all PIN codes.

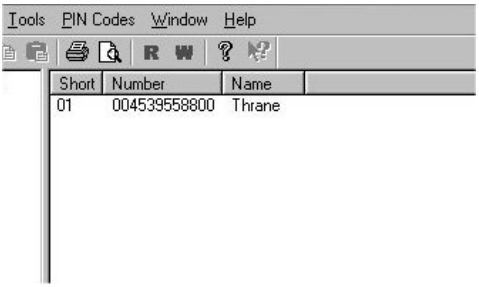


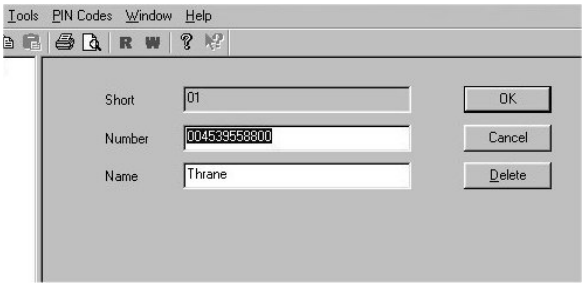
If a change to the configuration is made without entering a PIN code first, a prompt will appear when the write button is pressed, asking for the PIN. See below.

Capsat Fleet Configuration Program
You need supply the following PIN codes before this configuration can be written to Capsat Fleet
Service User PIN
OK
Cancel

To read more about PIN codes see section 3.2 Use of PIN codes.

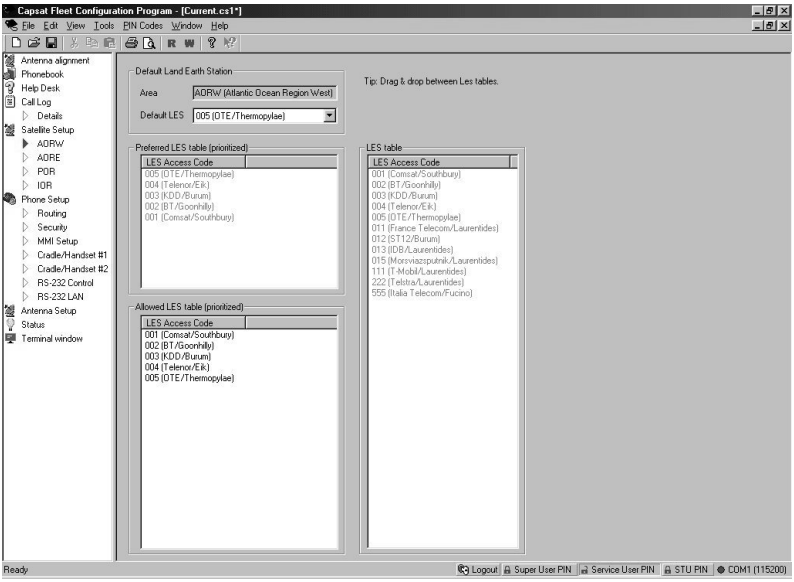
Phonebook entries is made by selecting Phonebook and right clicking in the phonebook area. Entries here can be modified or deleted in the same way. See picture below. Further information can be found 4.1.1 Phonebook.





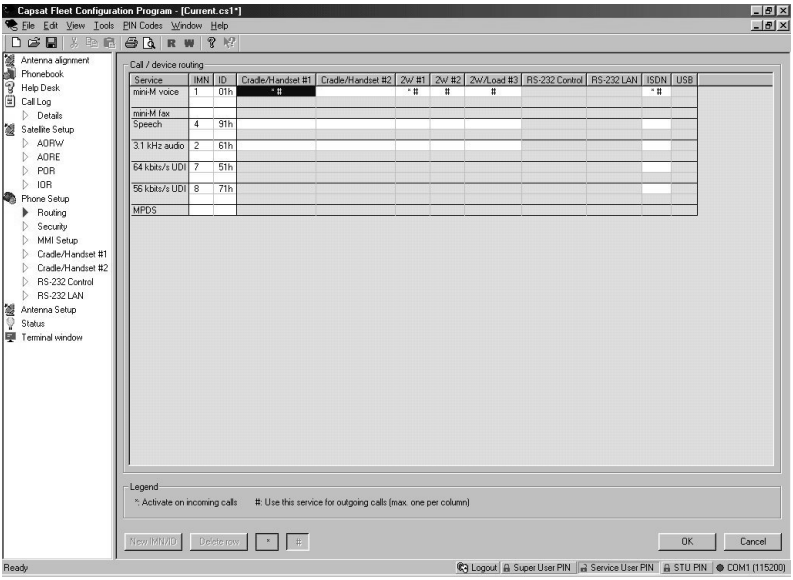
Inserting, editing and deleting entries in the Helpdesk works in a similar way. See the Installation Manual for further information.

Satellite Setup offers an easy way of setting up Allowed, Preferred and default LES. LES operators are dragged and dropped between the three tables. Setup is made for each ocean region. See below.



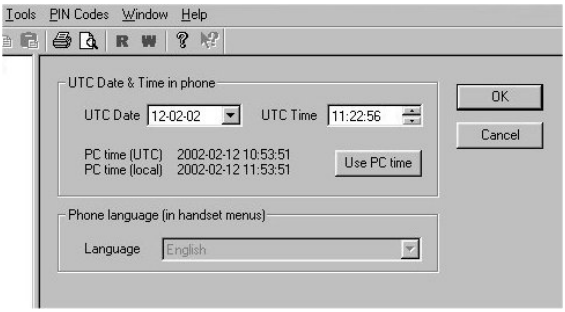
Read more about LES configuration in section 4.3.24 LES Config.

To route calls, use the table in the Routing window. Click in the cell that correspond to service/interface that is to be changed. Click the * or # button in lower part of the screen to define it as a incoming or outgoing call. To add a IMN, click the New IMN/ID button. See picture.

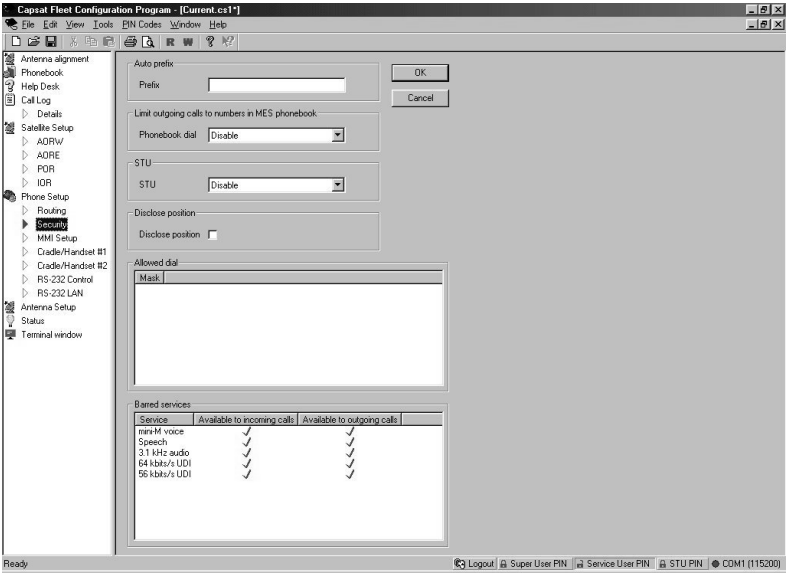


See section 4.3.22 Routing and 4.3.23 Tel. Numbers for a detailed explanation about routing, IMN and ID's.

To correct the time/date or in the future, the language, use the MMI setup window. Click the Use PC time button to import the time and date from the PC clock. See below.

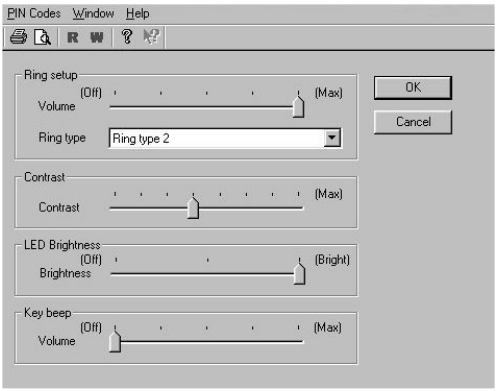


In the security window call restrictions can be enabled or disabled and an Auto prefix inserted.

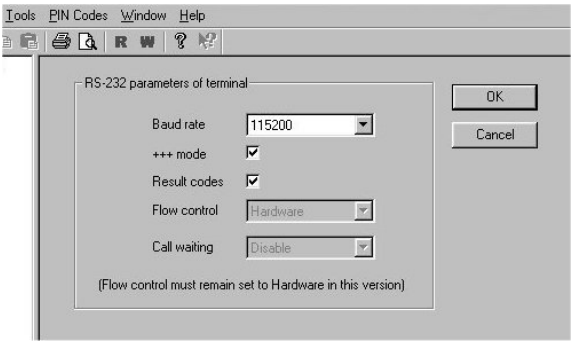


See section 4.3.12 Allowed Dial, 4.3.15 BarServiceIn and 4.3.16 BarServiceOut for more details.

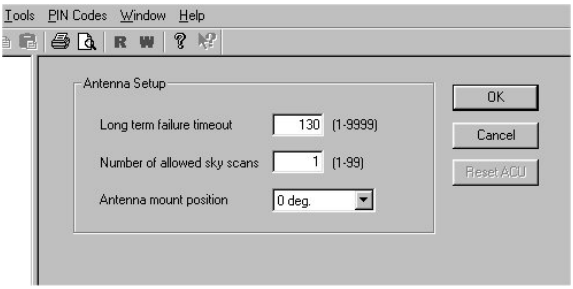
The Cradle/Handset window is where the ring type, ring volume, LED brightness and display contrast, is adjusted.



RS-232 parameters of the terminal can be changed in the RS-232 window.



The antenna setup gives a possibility to change Long term failure timeout, number of allowed sky scans and the antennas mount position relative to the ships bow. See section 4.3.18 Ant.Setup for details. The antenna can be rebooted by clicking the Reset ACU button.



The terminal window makes it possible to run AT commands in the same way as the Windows program HyperTerminal.

5

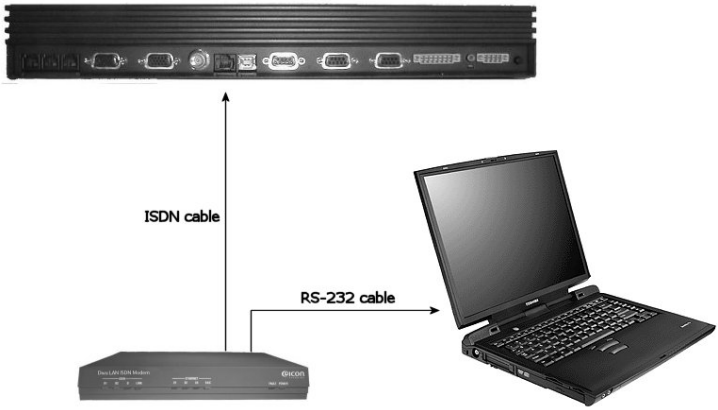
5.2 Set-up of data equipment

The illustrations below shows typical hardware setup for a MPDS and ISDN data connection.

MPDS Hardware Connection.

For a MPDS session, connect a RS-232 cable between the COM port of the computer and the COM ports on the F77. The COM ports on the F77 is marked X9.

ISDN Hardware Connection.



The ISDN connection is made by connecting an ISDN modem to the computer via a RS-232 cable. The modem is connected to the Fleet77 via an ISDN cable. The appropriate modem driver must be installed on the computer. See the manufacturers installations guide for details on how to do this.

5.2.1 Set-up for MPDS

The TT-3084A transceiver is connected to a PC or similar equipment via a standard RS-232 cable. In this manual, the setup of a PC running a MS-Windows operating system is described.

Configuring the TT-3084A

The transceiver has to be configured for the right ocean region and LES operator that provides the MPDS service. This is done using the TT-3084A handset user interface.

The transceivers RS-232 configuration shall be (using the handset user interface):

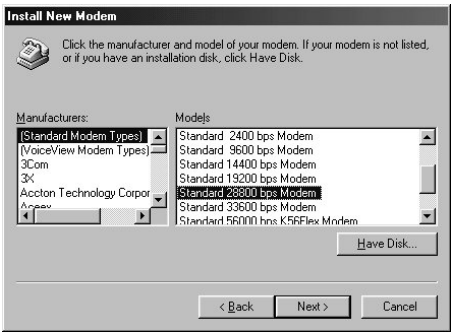
- Baudrate: 115200 baud
- Flow control: Hardware

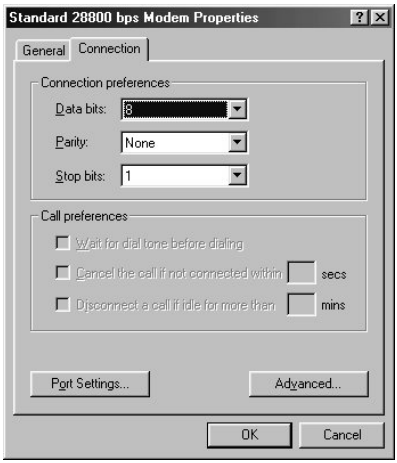
Setting up your PC

In this section the setting up of a MS-Windows based PC is described in general terms covering Windows 95, 98, 2000 and NT. The screen dumps below is from Windows 98. For a detailed description with more screen dumps of the installations, you are referred to the Application Note "Configuring Capsat Fleet77 for MPDS" on your MES Software distribution disk or at our web site WWW.TT.DK .

Step 1: Install a standard modem

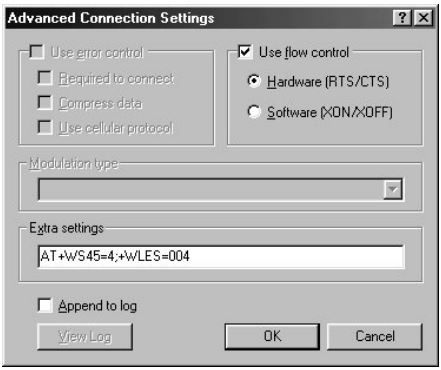
- From the Control Panel select Modems and add a Standard modem. Do not let Windows detect the modem, but manually choose a standard 28800 bps Modem.
- Select the appropriate COM port (i.e. the COM port that is connected to the TT-3084A serial port.
- Set maximum speed to 115200
- Set Data bits = 8, Parity = None and Stop bits = 1





Important:

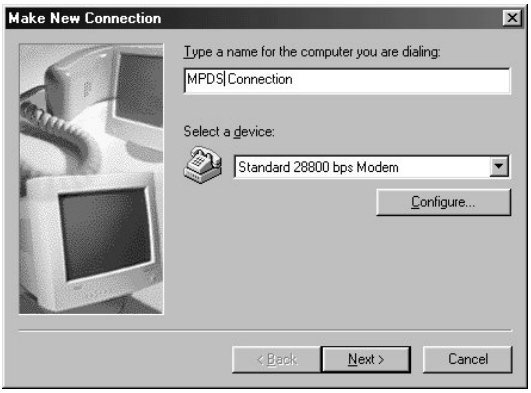
- Enter Advanced settings and type the initialization command AT+WS45=4 in the Extra settings field. This string is transferred to the TT-3084A transceiver when setting up a connection. If the MPDS connection is to use another LES than the one already selected, you use the initialization command = AT+WS45=4;+WLES=XXX, where XXX is the LES number.
- If the terminal is to stay in MPDS mode with no activity, for longer periods of time, then the automatic "disconnect when idle" setting in Windows must be disabled. Refer to your Windows manual on how to do this.



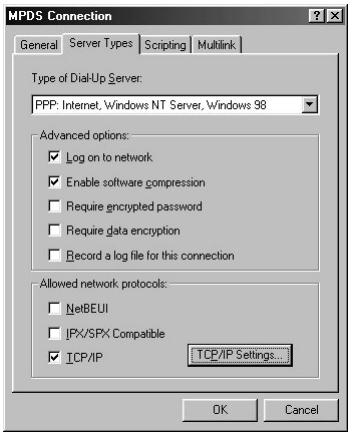
Step 2: Create a Dial-up connection

Open Dial-up Networking from My computer. Click "Make new connection"

- Select the standard modem defined during step 1 as the dial up device
- Enter a dummy telephone number (the number is not used but has to be defined – write e.g. "1" as the phone number
- Give the connection a recognizable name e.g. MPDS connection



Include TCP/IP as allowed network protocol and use default TCP/IP settings (Server assigned IP address, Server assigned name server addresses etc.)



5.2.2 Set-up for ISDN

The TT-3084A transceiver is connected to ISDN equipment via an ISDN cable. The equipment can be video phones, Audio Recorders, STE phones, modems, etc.

The correct routing has to be configured via the handset. See section 4.3.22 Routing on how to route the ISDN interface.

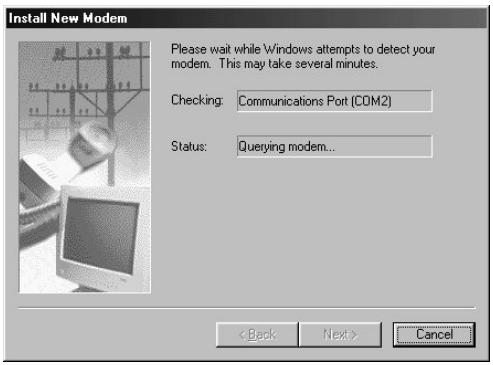
In the example below, is shown how to setup an Internet connection via ISDN.

Connect an ISDN modem to the ISDN interface. Connect the modem to a PC, via a standard RS-232 cable, or a USB cable if the modem supports this interface.

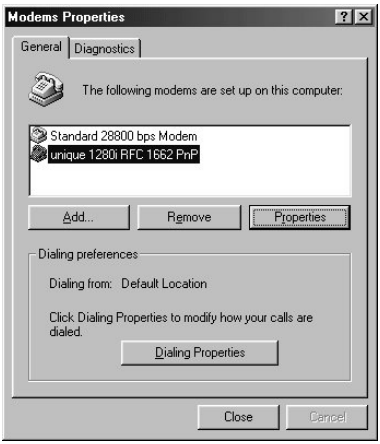
Follow the modem manufacturers installation instructions for the appropriate operating system. For this example a Lasat Unique 1280i ISDN modem was installed under Windows 98.

Step 1: Install a modem

- From the Control Panel select Modems and add a modem.
- Let Windows detect the modem automatically.



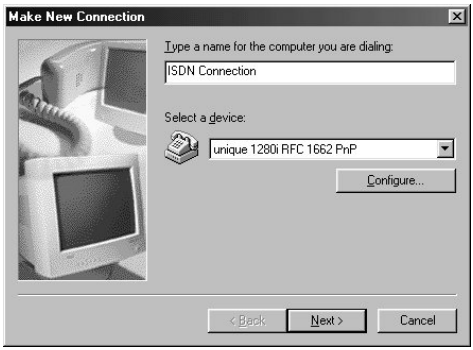
Verify Modem
The following modem was found on Communications Port (COM2):
unique 1280i RFC 1662
If this modem type is not correct, click Change to select a different type from a list.
Change...
< Back
Next >
Cancel

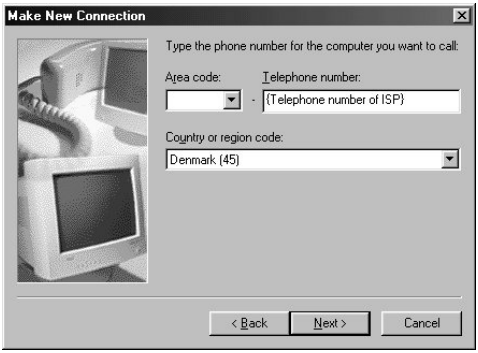


Step 2: Create a Dial-up connection

Open Dial-up Networking from My computer. Click "Make new connection"

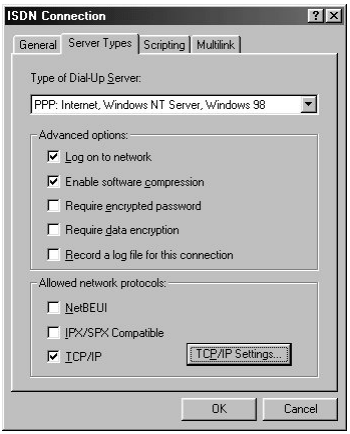
- Select the Lasat modem defined during step 1 as the dial up device

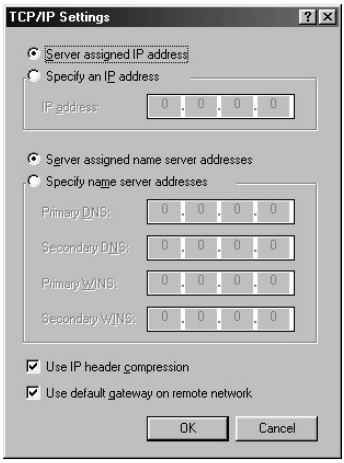




- Enter the telephone number to the Internet Service Provider. Remember country code and area code if necessary.
- Give the connection a recognizable name e.g. ISDN connection

Include TCP/IP as allowed network protocol and use TCP/IP settings (Server assigned IP address, Server assigned name server addresses etc.) as recommended by the ISP.





After this the connection can be made as described in section 3.5 ISDN and MPDS connection.

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6 Troubleshooting

6.1 What if

To Be Defined

6.2 List of Error messages

6.2.1 Inmarsat defined alarms

This section describes possible Cause Codes that may be displayed in the TT-3084A Handset of the Capsat® Fleet77.

Please note that all Cause Codes are also described in the Inmarsat SDM (System Definition Manual). (see also Inmarsat-M SDM Module 1 paragraphs 4.6.13 and 4.6.14).

The following four fields are used in conjunction in order to signal the cause indication result:

Cause code 1097:

A = Coding Standard (1 bit)	e.g.	1
B = Cause Location (4 bit)		0
C = Cause Class (4 bit)		9
D = Cause Value (4 bit)		7

Cause Code	Description	Event
1001	Normal	MES is clearing the call as instructed by the relevant MES terminal equipment (i.e., normal clearing due to MES terminal "on-hook" etc.)
1011	Called party is busy.	MES is rejecting the call because the specified MES terminal number is currently busy, and MES has not been authorized to divert calls which are addressed to that number
1012	Called party is busy	MES is clearing the fixed-originated call because subsequent to the acceptance of the call and the signaling of the identity of the mobile terminal to which the call will actually be routed, that terminal has become busy and hence cannot be rung
1021	No User responded	MES is clearing the call because appropriate "off-hook" signaling has not been received from the addressed MES terminal (including any authorized diversions) within the allowed time limit
1081	Identified channel does not exist	MES is rejecting the call because the specified MES terminal number has not been installed, and MES has not been authorized to divert calls which are addressed to that number
1091	Destination out of order	MES is rejecting the call because the specified MES terminal number is currently out-of-service, and MES has not been authorized to divert calls which are

		addressed to that number
1092	Destination out of order	MES is clearing the fixed-originated call because subsequent to the acceptance of the call and the signaling of the identity of the mobile terminal to which the call will actually be routed, that terminal has become out-of-service and hence cannot be rung
1141		Call cleared, MES initiated pre-emption
1142		Call cleared, MES initiated pre-emption
1143	Preemption	MES is prematurely clearing the fixed-originated call which is in the process of being established because the MES user has initiated a call from a terminal which is authorized to automatically preempt an existing fixed-originated call
1144	Reserved	
1145	Preemption	MES is prematurely clearing the mobile-originated call which is in the process of being established because the MES user has initiated a call from a terminal which is authorized to automatically pre-empt an existing mobile-originated call
1146	Normal.	MES is prematurely clearing the mobile-originated call which is in the process of being established because the MES user has abandoned the call (by placing the originating terminal "on-hook")
11A0		LES is clearing the call because the credit

		card being used is not valid (at this LES) for calls to the country indicated in the "service address" information received from the MES
11D1	Inconsistency in designated outgoing access information and subscriber class.	LES is rejecting the call because the "Service Nature" and/or "Service Type" and/or "Channel parameter" information received from the MES is invalid (e.g., not currently defined in the SDM, mutually contradictory, or not applicable to a MES-originated call)
11D2	Invalid number format (address incomplete)	LES is clearing the call because the "service address" information received from the MES is invalid (i.e., less than 2 digits)
11D3	Protocol error, unspecified	LES is clearing the call because the "service address" information received from the MES is a 2-digit address which is either undefined or which is currently unavailable at this LES
11D4	Protocol error. Unspecified	LES is clearing the call because "credit card data" information received from the MES is invalid. [This does not imply that the credit card itself is invalid]
11D5	Protocol error, unspecified	LES is clearing the call because the "service address" information received from the MES contains a country code which is regarded (by this LES) as invalid
11D6	Inconsistency in designated outgoing	LES is clearing the call because the "PID" information received from the MES in the "scrambling vector" message (type 8DH) is

	access information and subscriber class.	not consistent with the PID information in the Fixed/MES-Originated (PID) and PID/MES Registration Tables at the LES as it relates to this call.
11E0		LES is clearing the call because the credit card PIN received from the MES is not considered (at this LES) to be valid.
11E1		LES is clearing the call because it has been determined that an excessive number of consecutive call attempts with invalid credit card PINs have been made
1201	Reserved	
1261	Reserved	
1262		Call cleared, MES time-out (Distress Test exceeded 120s)
1281	Channel type not implemented	MES is rejecting the call because the MES is not equipped to provide the specified service
1291	Requested circuit/channel not available.	MES is rejecting the call because although it is equipped to provide the specified service, it is not currently able to do so
12B1	Interworking. Unspecified	MES is rejecting or clearing the call for a reason which is not covered by any of the currently defined "Cause" events
12C1		Call failed, MES time-out (no scrambling vector ack)
12C2	Protocol error.	MES is clearing the call because a "credit

	Unspecified	card valid" message (type A7H) has not been received by the MES within the allowed time limit
12C3	No User responded ??	MES is clearing the call because a "LES Connect" message (type 8CH) has not been received by the MES within the allowed time limit
12C4	Protocol error. Unspecified	MES is clearing the call because the "authentication query" ISU message (type B4H) and/or the "authentication query" SSU message (type B5H) have not been received by the MES within the allowed time limit
12C5	Protocol error. Unspecified	MES is clearing the call because an expected supplementary services SU(s) has(have) not been received by the MES within the allowed time limit
12C6	Protocol error. Unspecified	MES is clearing the call because the "supplementary services interrogation" ISU (type B2H), and/or "subscriber digits" SSU (type ADH) messages have not been received by the MES within the allowed time limit
12C7	Protocol error. Unspecified	MES is clearing the call because a "SCPC channel release" SU (type 8AH) has not been received by the MES, in response to the transmission of a "notification acknowledge" message (type BAH) during the supplementary services call diversion information retrieval process, within the allowed time limit

12D1	Protocol error, unspecified.	LES is rejecting the call because the "spot-beam ID" information received from the MES is invalid (i.e., ID is not allocated on satellite in use)
12D2	Protocol error. Unspecified	LES is clearing the call because the "Scrambling Vector" information received from the MES is invalid (ie,0000H, 6959H or 7FFFH)
1351		MES is clearing the call because the MES currently has insufficient free memory in which to store the short message
1361	Temporary failure	MES is clearing the call because the Above-decks equipment is about to "cable unwrap"
1362	Recovery on timer expiry.	MES is clearing the call because a long-term interruption in reception has occurred (the definition of a "long-term interruption" depends upon the service type, see Section B)
1363	Preemption	A Secondary Functional Center of a Multi-channel MES is clearing the call because the Primary Functional center has commanded the Above-decks equipment to repoint to a different Ocean Region
1392		Call cleared, spot beam transition
1451	No circuit/channel available.	LES is rejecting the call because an appropriate terrestrial circuit is not currently available at this specific LES

1452	No circuit/channel available.	LES is rejecting the call because an appropriate channel unit and associated terrestrial circuit are not currently available at this LES. [This "cause" is only utilized when there is a permanent "one-to-one" connection between appropriate channel units and their terrestrial circuits]
1541		Call cleared, pre-empted at LES
1551		LES is rejecting the call because an appropriate satellite channel is not currently available at this specific LES
1552	Reserved	
1581	Requested circuit/channel not available.	LES is rejecting the call because the requested service is not provided by this specific LES
1591	Temporary failure.	LES is rejecting the call because the requested service is temporarily not available at this specific LES
1592		LES is clearing the call because the specified credit card type is not currently supported by this specific LES
15A1	Bearer capability not authorized	LES is rejecting the call because the specified MES is not authorized for any service at this specific LES
15A2	Bearer capability not authorized	LES is rejecting the call because the specified MES is not authorized to use specific requested service via this specific LES

15A3		LES is clearing the call because the "credit card data" information received from the MES has been rejected by the credit card authorization process
15A4		LES is clearing the call because the data received from the MES in the "authentication reply" message (type B6H) has been declared "invalid" by the LES authentication process
15A5	Bearer capability not authorized	LES is rejecting the call because the specified PID is not authorized for any service at this specific LES
15A6	Bearer capability not authorized	LES is rejecting the call because the specified PID is not authorized to use specific requested service via this specific LES
15B1	Interworking. Unspecified	LES is rejecting or clearing the call for a reason which is not covered by any of the currently defined "Cause" events
15C1	Protocol error, unspecified	LES is rejecting the call because an appropriate "Channel Assignment" message has not been received by the LES within the allowed time limit
15C2	Protocol error. Unspecified	LES is clearing the call because the "service address" information has not been received by the LES within the allowed time limit
15C3	Protocol error, unspecified	LES is clearing the call because a "Scrambling Vector" message (type 8DH) has not been received by the LES within

		the allowed time limit
15C4	Protocol error. Unspecified	LES is clearing the call because neither the "service address" information nor a "Scrambling Vector" message (type 8DH) has been received by the LES within the allowed time limit
15C5	Protocol error. Unspecified	LES is clearing the call because the complete "credit card data" information has not been received by the LES within the allowed time limit
15C6	Reserved	Call failed, LES time-out (return carrier identifier)
15C7	No answer from user (user alerted)	LES is clearing the call because a "MES Connect" message (type 99H) has not been received by the LES within the allowed time limit
15C8	Reserved	
15C9		LES is clearing the call because a "authentication reply" message (type B6H) has not been received by the LES within the allowed time limit
15CA		LES is clearing the call because a "notification acknowledge" message (type BAH) has not been received by the LES within the allowed time limit
15CB		LES is clearing the call because the request sequence number contained in the received "notification acknowledge" message (type BAH) is not valid (i.e. either

		not '0' or not the next value in the sequence)
15D1	Message with unrecognized parameter, discarded	LES is rejecting the call because the "Channel Assignment" message received from the NCS contains inappropriate or conflicting information
15D2	CES → NCS Signaling only.	LES is clearing this MES ID and channel number in the busy lists at LES and NCS because a new call to/from this MES is being set-up (and thus any previous call to/from this MES must have cleared)
15E1	Preemption - circuit reserved for reuse	LES is attempting to clear an MES which has sent an SCPC channel release message but is found still to be transmitting 5.12 s later
1651	No circuit/channel available.	LES is rejecting the call because an appropriate channel unit is not currently available at this specific LES
1661	Recovery on timer expiry	LES is clearing the call because of an interruption in reception of the MES carrier exceeding the allowed time limit
16C1	Reserved	
16C2	Recovery on timer expiry	LES is clearing the call because an appropriate SCPC MES carrier has not been received by the LES (at the commencement of the call) within the allowed time limit
1790		LES is clearing the call because of a malfunction in the credit card validity

		checking database or in the communications links thereto
1791		LES is clearing the call because of a malfunction in the authentication checking database or in the communications links thereto
1811	Called party is busy	NCS is rejecting the call because the specified MES ID is in the ”MES busy” list at the NCS.
1841		Call cleared, NCS initiated preemption for incoming Pri 1 call
1842		Call cleared, NCS initiated preemption for incoming Pri 2 call
1843		Call cleared, NCS initiated preemption for incoming Pri 3 call
1844		Call cleared, NCS initiated channel preemption
1851	No circuit/channel available.	NCS is rejecting the call because an appropriate SCPC channel is not currently available
1855		Call rejected, preemption failed, no channel available
1856		Call rejected, spot beam selection failed
18A1	Bearer capability not authorized	NCS is rejecting the call because the specified MES ID was not found in the "Forward and Return MES ID" cross-reference table

18A3		
18B1	Interworking, unspecified	NCS is rejecting or clearing the call for a reason which is not covered by any of the currently defined "Cause" events
18C1	Subscriber absent	NCS is rejecting the call because no message was received from the specified MES (in reaction to a Call Announcement message) within the allowed time limit
18E1	Called Party is busy	NCS is rejecting the call because the specified MES ID is in the "MES busy" list at the NCS, and is listed as being busy with a call through the same LES as that now requesting a "call announcement" addressed to that MES
1C61		
1F01	Normal	LES is clearing the call because of the receipt of "on-hook" signalling from the relevant terrestrial circuit (i.e., normal clearing)
1F11	Called Party is busy	LES is clearing the call because the terrestrial called party is engaged (busy)
1F21	No User responded	LES is clearing the call because appropriate "off-hook" signalling from the terrestrial called party has not been received by the LES within the allowed time limit
1F61	Destination out of order	LES is clearing the call because of the detection of a failure in the relevant terrestrial circuit

1F62	Normal	The LES is clearing the call because the terrestrial calling party or the terrestrial network has cleared the call before the "MES connect" message has been received by the LES.

6.2.2 Non Inmarsat Alarms

Alarm Type	Alarm Message
CPU Alarms	Tx-Level Not Ok.
	1. LO Lock Not Ok.
	2. LO Lock Not Ok.
	3. LO Lock Not Ok.
	Vtune Alarm.
	Unanswered distress call received.
	Unanswered urgency priority call received.
	Distress LES not selected in all ocean regions.
	One or more of the selected distress LESs are not operational
	At least one selected distress LES has not

	distress capability.
	Invalid position information received from GPS.
	MSR Corrupt
	MIR Corrupt
	MIDR Corrupt
	NAR Corrupt
	NSR Corrupt
	SVR Corrupt
Antenna Alarms	Antenna(FEU) Link Down, Check Cable
	FEU Reset, Powered Down
	FEU Reset, Sleep Mode
	FEU Error, To Follow
	FEU Status, heat alarm
	FEU Status, burst alarm
	FEU Status, power alarm
	FEU Status, reset
	ACU Comm, Failure
	ACU Reset, Powered Down

ACU Reset, Sleep Mode
ACU Error, To Follow
Kernel Error, Float pnt
Kernel Error, 80Hz tsk overrun
Kernel Error, RX2 UART tsk overrun
Kernel Error, SCI tsk overrun
Memory Error, Cont SW CRC
Memory Error, ACU Cnf Data
Memory Error, ACU Cal CRC
Memory Error, FLASH mem
Memory Error, ACU SRAM
Memory Error, ACU EEPROM
Memory Error, FPGA Init
Memory Error, FPGA SW CRC
Motor Error, Azm Drive
Motor Error, Elv Drive
Motor Error, Azm Winding
Motor Error, Elv Winding

Motor Error, BSM Winding
Motor Error, FPGA cmdtmo
Pos feedback, BSM Zero Ref
Pos feedback, Azm Encoder
Pos feedback, Elv Encoder
Pos feedback, Elv Positive End Stop
Pos feedback, Negative End Stop
Pos feedback, Azm Zero Ref
SU Error, Cal Data CRC
SU Error, Initialize
SU Error, Comm
SU Error, protocol
SU Error, Sys Info CRC
Sensor Err, Roll Incl
Sensor Err, Pitch Incl
Sensor Err, Roll Rate
Sensor Err, Pitch Rate
Sensor Err, Yaw Rate

Ctrl Logic, ACU Matrix
Ctrl Logic, RX2 Comm
Ctrl Logic, RX2 AutoTune
Ctrl Logic, ACU resett.
Ctrl Logic, RX2 tunetmo
Ctrl Logic, RX2 dither
Ctrl Logic, RX2 PLL
RX2 Error1, EEPROM
RX2 Error1, Temperature
RX2 Error1, No Signal
RX2 Error1, Channel Out Of Range
RX2 Error1, Param Out Of Range
RX2 Error1, AutoTune
RX2 Error2, RX2 RSSI lo
RX2 Error2, RX2 RSSI hi
UNKNOWN ERR pos:

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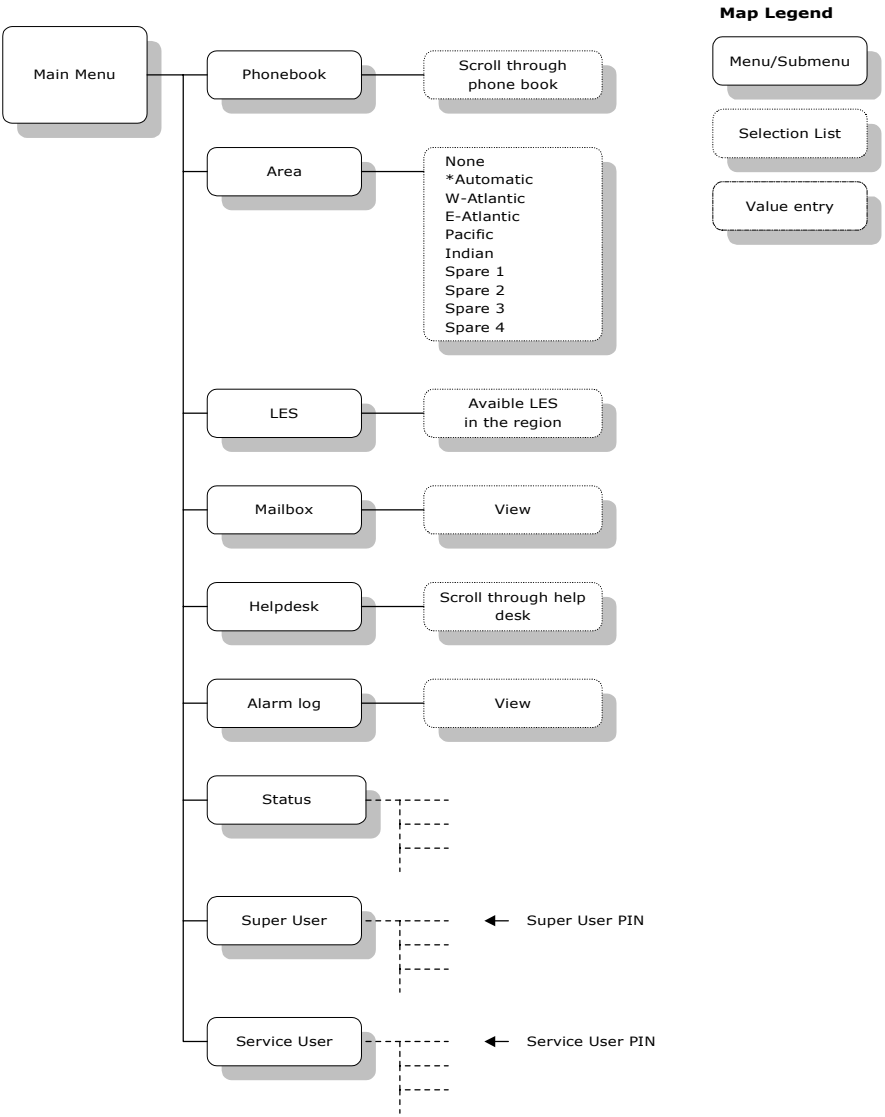
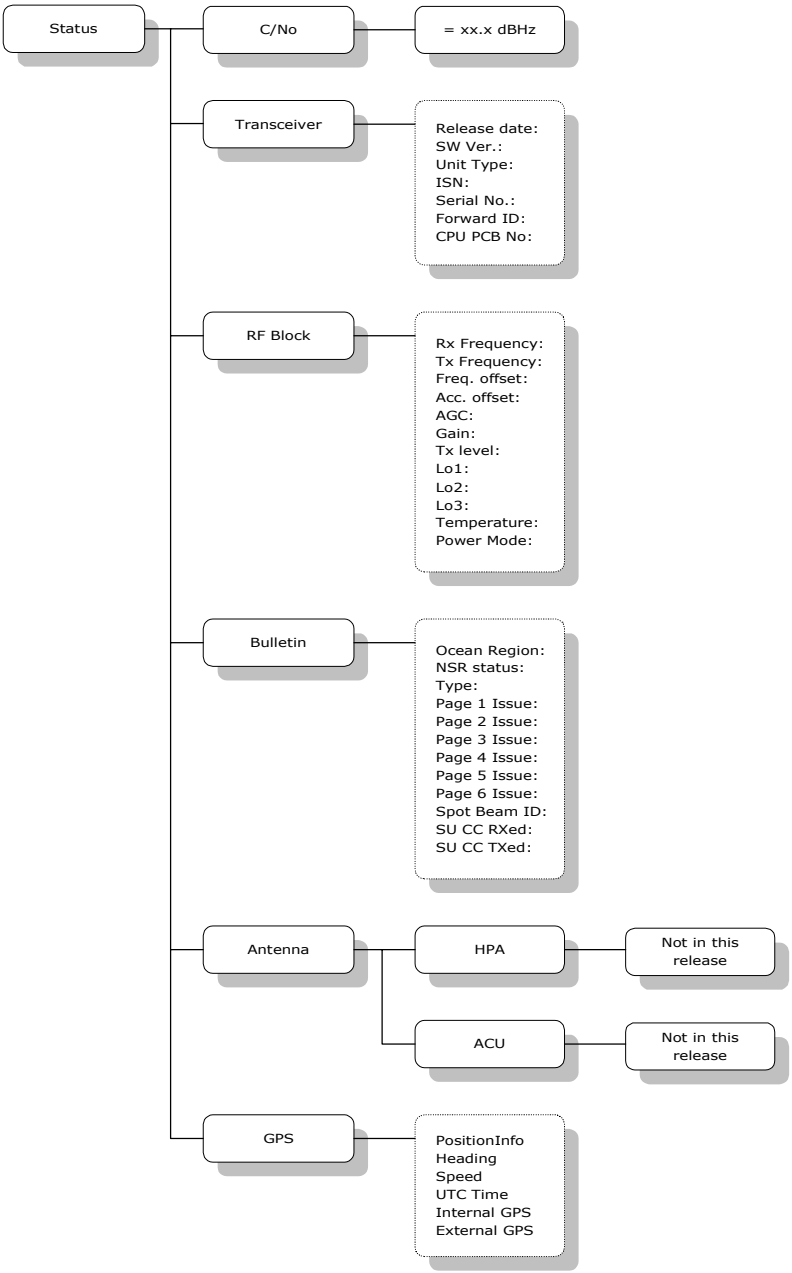
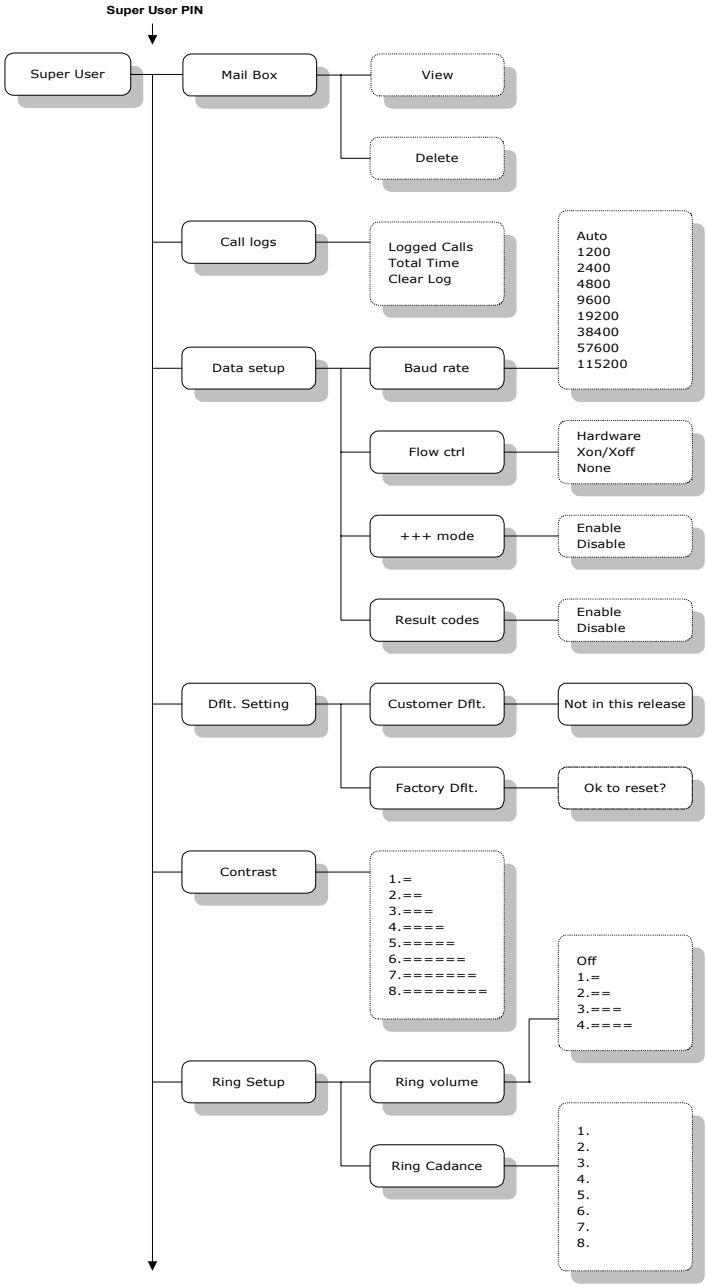
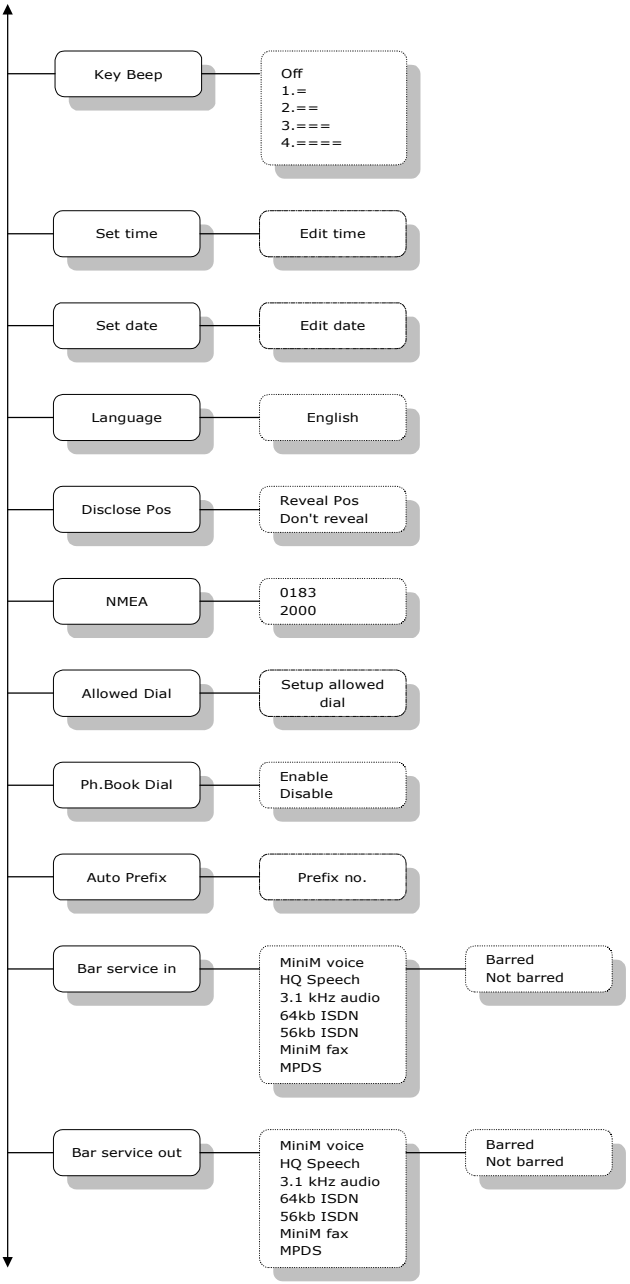
Appendix A - Menu Tree

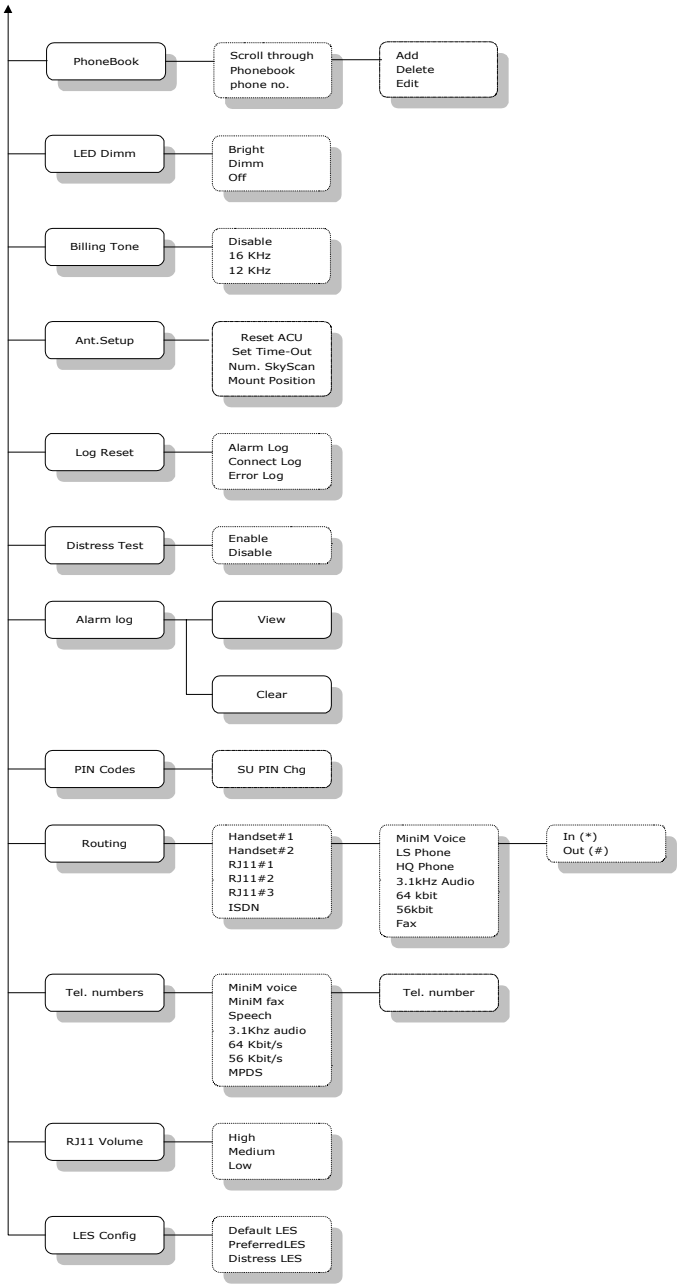



Status
C/No
= xx.x dBHz
Transceiver
Release date:
SW Ver.:
Unit Type:
ISN:
Serial No.:
Forward ID:
CPU PCB No:
RF Block
Rx Frequency:
Tx Frequency:
Freq. offset:
Acc. offset:
AGC:
Gain:
Tx level:
Lo1:
Lo2:
Lo3:
Temperature:
Power Mode:
Bulletin
Ocean Region:
NSR status:
Type:
Page 1 Issue:
Page 2 Issue:
Page 3 Issue:
Page 4 Issue:
Page 5 Issue:
Page 6 Issue:
Spot Beam ID:
SU CC RXed:
SU CC TXed:
Antenna
HPA
Not in this release
ACU
Not in this release
GPS
PositionInfo
Heading
Speed
UTC Time
Internal GPS
External GPS

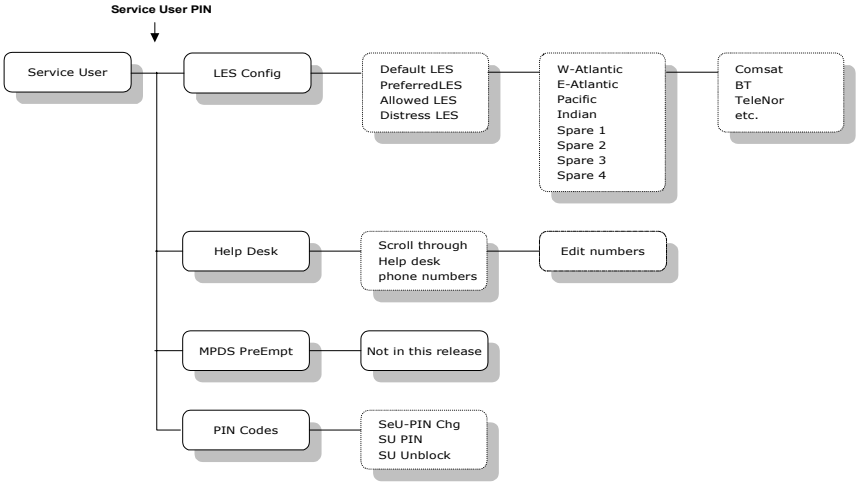

Super User PIN
Super User
Mail Box
View
Delete
Call logs
Logged Calls
Total Time
Clear Log
Data setup
Baud rate
Auto
1200
2400
4800
9600
19200
38400
57600
115200
Flow ctrl
Hardware
Xon/Xoff
None
+++ mode
Enable
Disable
Result codes
Enable
Disable
Dflt. Setting
Customer Dflt.
Not in this release
Factory Dflt.
Ok to reset?
Contrast
1.=
2.==
3.===
4.====
5.=====
6.======
7.=======
8.========
Ring Setup
Ring volume
Off
1.=
2.==
3.===
4.====
Ring Cadance
1.
2.
3.
4.
5.
6.
7.
8.


Key Beep
Off
1.=
2.==
3.===
4.====
Set time
Edit time
Set date
Edit date
Language
English
Disclose Pos
Reveal Pos
Don't reveal
NMEA
0183
2000
Allowed Dial
Setup allowed dial
Ph.Book Dial
Enable
Disable
Auto Prefix
Prefix no.
Bar service in
MiniM voice
HQ Speech
3.1 kHz audio
64kb ISDN
56kb ISDN
MiniM fax
MPDS
Barred
Not barred
Bar service out
MiniM voice
HQ Speech
3.1 kHz audio
64kb ISDN
56kb ISDN
MiniM fax
MPDS
Barred
Not barred

A


PhoneBook
Scroll through Phonebook phone no.
Add
Delete
Edit
LED Dimm
Bright
Dimm
Off
Billing Tone
Disable
16 KHz
12 KHz
Ant.Setup
Reset ACU
Set Time-Out
Num. SkyScan
Mount Position
Log Reset
Alarm Log
Connect Log
Error Log
Distress Test
Enable
Disable
Alarm log
View
Clear
PIN Codes
SU PIN Chg
Routing
Handset#1
Handset#2
RJ11#1
RJ11#2
RJ11#3
ISDN
MiniM Voice
LS Phone
HQ Phone
3.1kHz Audio
64 kbit
56kbit
Fax
In (*)
Out (#)
Tel. numbers
MiniM voice
MiniM fax
Speech
3.1Khz audio
64 Kbit/s
56 Kbit/s
MPDS
Tel. number
RJ11 Volume
High
Medium
Low
LES Config
Default LES
PreferredLES
Distress LES

A


Service User PIN
Service User
LES Config
Default LES
PreferredLES
Allowed LES
Distress LES
W-Atlantic
E-Atlantic
Pacific
Indian
Spare 1
Spare 2
Spare 3
Spare 4
Comsat
BT
TeleNor
etc.
Help Desk
Scroll through
Help desk
phone numbers
Edit numbers
MPDS PreEmpt
Not in this release
PIN Codes
SeU-PIN Chg
SU PIN
SU Unblock